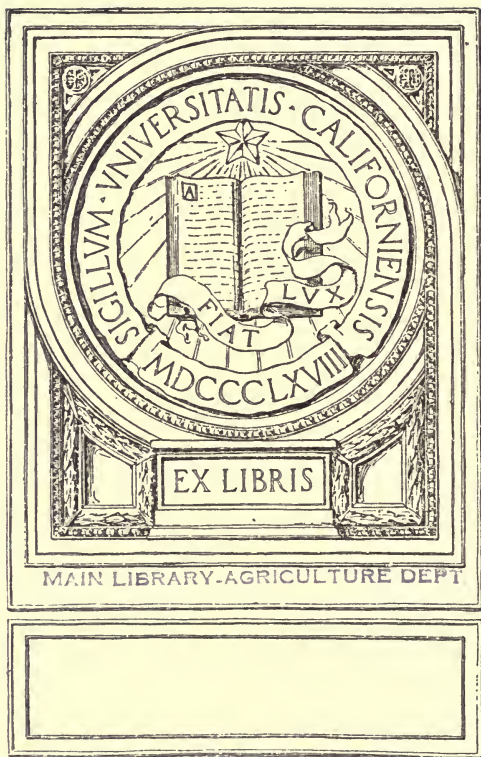


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FIG. 1.—A reminder of the progress made by the master breeders and judges of animal form.

THE FUNDAMENTALS
OF
LIVE STOCK JUDGING
AND
SELECTION

BY

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TO
STUDENTS AND STOCKMEN

"No detail is too small to be studied for truth."

Stevenson.

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PREFACE.

THE progress of the teaching of Animal Husbandry, especially live stock judging and selection, commends this division of the subject to a full modern treatise dealing with all domestic animals. Rapid advancement in special fields of production and selection, and the addition of new phases of animal judging, have furnished much new material for the work.

In developing the subject various viewpoints ranging from that of the extensive live stock breeder to the city fancier must of necessity be considered. Not only the college student and the professional judge, but also the live stock breeder, general farmer, salesman, buyer, and the city fancier of stock at one time or another inspects animals from the standpoint of the critic. He thus becomes the judge whether in the show ring or in the field, and when the term "judge" is referred to in the text it should be understood that it is not specifically used. In certain instances attention may be directed to the student or the professional judge while in other cases any of the above meanings may be inferred. Any individual who selects stock is placed in the position of the judge, specifically speaking, and he should, therefore, be so considered in construing the various discussions herein given.

The improvements of this volume upon former presentations of the subject consist in logical groupings of the subject matter, as well as many entirely new features of special

significance. These are brought out mainly in the first five chapters dealing with the methods and practices and general principles applicable to the judging and selection of all classes of live stock. In the fifth chapter information is included relative to important factors or problems of the individual, the breeds and the selection of the same, otherwise than by an external examination on which student and show ring judging is necessarily based. One chapter is devoted to the jack, jennet, and mule, since the latter has become of great economic importance and former discussions of the subject have been incomplete.

A complete and convenient reference to breed descriptions through photographs and concise breed characteristics is included and supplemented with the latest standard of excellence and scale of points of each of the important breeds. Market and show ring considerations are discussed fully because of the tendency toward the more practical phases of commercial or market live stock judging. The additions include a number of the newer breeds of live stock which have recently come into prominence and therefore deserve comment.

The material included herein, especially the breed studies, has in certain instances been submitted to prominent authorities to obtain accurate and impartial criticism. It has been the aim of the author to mention only the more important phases of the subject, leaving the detailed or exhaustive information for reference reading. It can be readily realized that no single volume of this nature can exhaust the information available. The work is intended primarily for students, farmers and stockmen who wish to become familiar with the methods and practices in judging the pure breeds and market and show classes of live stock. The subject matter has been arranged systematically to facilitate the study of

particular phases in the judging and selection of the various breeds, types and classes. The author hopes that the work will fit the needs of the class room, the stockman and the general farmer.

He desires to acknowledge credit to the many books and periodicals on Animal Husbandry from which valuable help and suggestions were obtained in the preparation of this work. He is especially indebted to Carl W. Gay, University of Pennsylvania; C. S. Plumb, Ohio State University; the late John A. Craig, formerly of Oklahoma Agricultural College; Robert Wallace, University of Edinburgh; M. H. Reynolds, University of Minnesota; and F. W. Wilder, Packing Plant Superintendent, Chicago, Ill., for the help and suggestions obtained from their works.

General acknowledgement is hereby given to all other sources from which helpful information was obtained. The contributions from the various books, pamphlets, bulletins, and periodicals dealing with the subject of farm animals has been invaluable in the preparation of this work.

Acknowledgement is due Robert F. Hildebrand, Chicago, Ill., and Schrieber and Sons, Philadelphia, Pa., who, under the direction of the author prepared most of the illustrations, which are such a valuable source of information in a work of this nature. They therefore deserve the special touch which the animal photographer only can give them by securing the natural pose and position of the subject.

R. S. C.

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LIVE STOCK AND JUDGING SELECTION.

CHAPTER I.

THE LIVE STOCK INDUSTRY.

Method of Development.—The subject of live stock judging has become of widespread importance not only through the teaching of these courses in agricultural colleges, high schools and other institutions but also through the increased demand for knowledge among farmers who anticipate following some phase of live stock work. Keen competition among breeders and vendors of market animals has placed the subject on a high plane. The real constructive breeder, whose work is generally unappreciated, has perfected beauty and utility of form which is responsible in the main for revolutionizing the live stock breeding industry. Comparatively few people appreciate the improvement which has been made in animal form thereby owing to the priority of original development. A full realization of the improvement may be readily recognized, however, by comparing the original long-horn steer with the symmetrical, deep-set, well-developed, compact form of the modern bullock.

This change from the lank, rangy animal to the close compact form has been accomplished step by step. It represents the work of more than a century and the guidance of men who had clear mental pictures of what the ideal animal should be. It represents the guidance of men who have, through their own originality, principally, been able to grasp, direct and mould the consequent forces of heredity.

This work represents the result of judgment and selection of animal form through which a gradual and persistent improvement has been made possible. It may be compared to two animals with widely varying marks of merit, the one representing the acme of modern development, and the other an animal of the same breed a decade prior. These visual pictures enabled the breeder to foresee what proper moulding of animal form would bring a decade hence. The breeders who, through their superlative genius, brought about these improvements are among the highest and most renowned judges of animal form. They not only painted visual pictures of what art later accomplished, but they were able to recognize readily the good and the bad and thereby eliminate the unpromising from their future breeding work. This is the same principle by which a modern judge selects the ideal type in a class and graduates the remainder of the animals in their respective positions or order of merit.

Fields for Development.—The subject of live stock judging and selection may be divided into two distinct divisions, the one representing the pure breeds of live stock used for foundation or reproductive and improvement purposes; and the other animals possessing commercial attributes as found in these breeds, either in the pure bred, cross bred or grade form when grouped in their proper type or market classes. Breeds represent the product of definite foundation blood, soil, climate, feeds, certain objects or purposes and the fancy of the various constructive breeders. While in most instances in the various types and classes of stock several breeds may conform closely to a specific purpose, almost invariably there are special characteristics which make one or the other excel under changed environment, purpose or condition. They may do likewise from the standpoint of market requirements which should be the nucleus of all live stock improvement. It is this last analysis of an animal in ascribing its fitness for work or for the block in which the majority of stockmen are interested. Breed type is important to the producer of pure bred breeding stock, but market type is of greater importance to the pro-

ducer of market animals. These two special phases of animal improvement have opened two distinct fields for work and consequently a need for definitely arranged information on the subject.

Importance of Keen Judging and Selection.—The rapid development of the live stock industry for special productive purposes and for farm land improvement makes it not only desirable but profitable to have a thorough knowledge of live stock judging and selection. The importance of this statement can be more fully realized after becoming acquainted with the magnitude and monetary value of the industry. The loss from an individual animal through inferior breeding, careless selection, or improper feeding may be small, and therefore not seriously affect the breeder or owner. If this loss was occasioned, however, in a large herd over a long period of years, it would mean the loss of a substantial sum. Considering that faults in animal form can be largely overcome by wise judging and selection without entailing any appreciable additional outlay of money, the importance of the subject should be doubly emphasized or appreciated. The decrease in the finished weight of fat cattle at nine of the leading live stock markets in 1912 shows an average shortage of 18 pounds per head. Based on the total number of animals shipped to these markets, there was a total decrease of 144,793,620 pounds of beef. This loss could have been largely overcome by either closer selection or better methods of feeding. While other causes may have been responsible for the condition, it serves to illustrate the importance of keen judging and selection. Based on all the cattle slaughtered for a period of ten or twenty years the figures would be almost insurmountable.

It would be even more important to remedy the defects of the breeding animal than in the market animal because the former would continue to reproduce the undesirable characteristics. This factor of inferiority would be of great importance, however, even in market animals for the lack of only a few pounds gain, due either to faulty selection or feeding of the individual, would mean a large loss in the aggregate.



FIG. 2.—It would require keen discrimination and judgment to make a correct alignment of this group on a basis of utility.

Value of Domestic Animals.—The magnitude of the live stock industry can best be understood by citing the figures giving the value of these animals on the farms of the United

States. The Census for 1910 gives the following value of the various kinds of live stock maintained:

Kind of stock.	Number.	Value.
Horses	19,833,113	\$2,083,588,195
Jacks, jennets, and mules . .	4,315,737	538,591,975
Cattle	61,803,866	1,499,523,607
Sheep	52,447,861	232,841,585
Swine	58,185,676	399,338,308
Total	196,586,253	\$4,753,883,670

These figures are sufficient to indicate the vast economic importance of the live stock industry. Live stock judging and selection has maintained an important part in developing the industry to its present magnitude and importance, both from the standpoint of numbers and value. How much greater the value would have been through keener methods and practices in judging and selection, it would be difficult to ascertain. Suffice it to say, however, that the increase in quality which might have been attained by better methods and practices would have reduced the cost of keep materially as measured in terms of the finished value of the product. As this is the problem in which the live stock husbandman is interested, the application of better methods would not only increase the quality of the product from a connoisseur's standpoint, but add profit as well to the industry.

Possibilities of Industry.—The figures given above illustrate the possibility of securing increased revenue by more careful judging and selection and better ultimate handling and management. The opinion is thoroughly conversant and borne out by facts that it does not require any more to maintain an animal with a high order of merit than it does an inferior one. Based on this statement, an average increase in weight of one pound on all kinds of domestic animals hereafter considered, exclusive of horses, mules, and asses, would mean an increase of 172,437,403¹ pounds of edible meats. It is readily imaginable how this increase could be obtained by closer selection alone. From these figures it

¹ United States Census, 1910.

is not difficult to perceive the wonderful possibilities of close judging and selection of animal form. The average value of horses per head in 1910 was \$105.06,¹ and while this includes young stock, it would be possible to increase their value 50 per cent. by more careful judging, selection, and ultimate management. Other classes of animals are equally susceptible to the same amount of improvement under like conditions.

It is recognized that it is impossible to ascribe all of the possible improvement in weight, form, and quality or other attributes to keen judging and selection, yet breeders and students of animal form readily recognize its importance. The foundation for profit in live stock farming is substantially based on the type of animal selected for breeding, work, or for direct meat productive purposes. Ill-bred animals, which means careless selection largely, are attributed as being generally unprofitable, either for breeding or feeding purposes. Close scrutinized judgment in selection could not remove all the faults of animal form at once but its continuance would be clearly apparent for a substantial period of years. Proper application of the principles of judging and selection would not only remedy many destroying influences in live stock production, but it would increase or improve almost without apparent cost the world's total supply of meat, milk and wool, and form, quality, and efficiency in work and pleasure animals.

Faculties and Requirements in Judging.—There are two special faculties necessary to select or judge accurately a class of live stock. These are, first, a proper knowledge of what constitutes the utility points which are judged, either from a breeding standpoint, or from that of market and show requirements; and second, a quick and keen observance of both the major and minor faults in animal form. Craig states that "When a distinct ideal based on the best types and their highest qualities has been formed in the mind, and this is supported by a discriminating eye, it is but another step to render a correct judgment."

¹ United States Census, 1910.

This increased activity and keen competition in modern judging is due to the success which constructive breeders have attained as students of live stock problems. The science of breeding, feeding, and development was formerly considered too simple for a study of the scientific roads of improvement. Live stock breeders and feeders, however, are awakening to the fact that it takes brain as well as brawn to produce prize-winning animals. Not since the days of the Collings, Booth, Bates and Cruikshank, have stockmen realized the depth of the problems in live stock selection, breeding, and feeding.

The real student of judging and selection must be practical and keen sighted to attain success, either as a judge or as a breeder. Since this is the final test of the breeder's art, the student of judging and selection must have clearly in mind the ideal animal for the various purposes intended in the breeding or commercial world. Not until he has distinctly mastered these details of utility, and becomes keenly alive to the minor differences in all parts of animal form, can he expect to be classed as a dependable live stock critic,

CHAPTER II.

RELATION OF STRUCTURE TO ANIMAL JUDGING.

IN animal judging there are special fundamental attributes or attainments, the value of which must be fixed or measured in terms of the animal mechanism to be defined or studied. Without a knowledge of these fundamental problems and their relation to the particular type of animal involved judging and selection of live stock would be at best a haphazard undertaking. The following representation of these fundamentals is not exhaustive, yet it emphasizes the importance of having a knowledge of the specialized foundation structure and its correlated parts.

PURPOSE OF ANIMAL MECHANISM.

The purpose of animal mechanism varies widely. Animals are produced for draft, speed, show, pleasure, meat, milk, and wool. In certain instances these purposes or uses may be combined in the same animal, as described subsequently. In the first four instances, wherein special reference is made to the horse, the general form of the machine is the same, although the purpose or adaptation is at a wide variance. The difference is largely in the details of structure, the mastery of which constitutes one of the main fundamentals of animal judging.

Meat is ordinarily obtained from three sources in domesticated animals. However, that of the best quality is a product of an animal bred specially for the purpose. The beef animal, the fat and bacon hog, and the mutton sheep produce what may be termed a specific product. Milk is obtained

from an animal differing more widely in form and mechanism than any of those classed as food-producing animals. Meat obtained from a milk-producing animal may be classed as a by-product. Although a large proportion of meat products are ultimately obtained from this source, the dairy animal possesses a specific type and has a specific function in milk production. Its purpose must therefore be so defined, and any surplus obtained in meat or otherwise should be classed as a by-product. In the dual purpose animal, the meat and milk-giving functions are supposed to be equally correlated. The degree of manifestation in either is arbitrary with the breeder who may change the ratio of production by a simple modification of the type through the natural source of selection and reproduction. The sheep may be classed as a dual purpose machine in one instance and as a specific machine in the other. The mutton breeds of sheep are bred for a specific purpose, although their wool is an important by-product. In the strictly wool-producing breeds, the mutton is a by-product being analogous in this respect to meat from a dairy animal.

The animal mechanism must of necessity vary greatly to perform or manifest these various phases of production. The relation between the machine and production is intimate and it is only by having a definite knowledge of the former that conformity to purpose or the power of production can be accurately measured.

RELATION OF MECHANISM TO PERFORMANCE AND PRODUCTION.

The form which an animal assumes is an embodiment of the inner or unseen structure, more specifically of the bone and muscle development. It is these two fundamentals that directly or indirectly determine size, shape, locomotion, compactness and disengagement or looseness of structure. The draft horse is low set, massive, and compact. This condition is a direct result of the structural units in the mechanism. Every condition of development is a manifesta-

tion of what the completed animal will be. The broad head, the short thick neck, the broad breast and deep chest, the wide, deep body and the full massive quarters are fundamental in the acquisition of weight, which is one of the chief requisites of draft horse attainments. These qualifications are direct exponents of the principal nuclear structure which is the bony framework.

The speed horse is the direct opposite of the draft animal. Both the bones and muscles are longer, attaining a smaller diameter and therefore a greater manifestation of speed, which is directly associated with qualifications which possess or exhibit reach or extension. The structural development of other types of horses are modifications or combinations of the two types described. The degree of modification measures their utility, whether they still retain draft or speed qualifications or assume entirely new attainments characteristic of other distinct types of horses.

Likewise the beef and dairy animal, the fat and bacon hog, and mutton and wool-producing sheep are measured in value by their conformity to type standards which have been determined the most economical for productive purposes. The mechanism which, grossly defined, includes the bone and muscle development, determines the value of an animal. This is true, however, only when the more vital functions are working in perfect harmony with these two fundamentals of animal formation. Without proper nerve force or development, circulatory, digestive or reproductive functions, the gross materials which give size, shape, and locomotion would be of no value.

Gross Structural Material.—The bones and muscles are substantially the foundation upon which all animals are constructed. It is important, therefore, to have a clear conception of the part which these gross structural materials play in giving size and shape to the animal. The ultimate value of a dressed animal, for example, is directly dependent on the amount and quality of edible products obtained. The framework of the horse is equally important, as strength, durability, and longevity are closely associated with the at-

tainments in this respect other than the part which they play in the formation of size and shape in the finished animal.

The muscles of an animal are directly related to the attainments of power, speed, and meat production, but more specifically to the latter. Short, thick muscles characterize the draft animal; long and thin muscles the speed animal. The fundamental purpose of the muscular system is to operate the bones. The secondary function is to give shape and a certain degree of finish to the animal. A careful study of the skeleton and muscles will reveal that much of the animal form is determined by the mass of muscles, especially in certain parts. In other regions animal form is characterized largely by the development of the bony framework. A knowledge of these relations is of extreme importance to the student of animal form.

Special and Combined Functions.—Specific functions characterize animals which are bred for one definite purpose, although they may produce liberally in other directions. Animals of the special type are easily depicted or measured in performance or productive value. Every part of their structure is perfected toward one definite end. Every attainment in the structural development is a manifestation of some definite purpose. Where there is thus no division of energy it is comparatively easy to make an alignment of values.

The dual purpose animal is bred for two purposes, both of which must be embodied in the animal form. This represents an average development, theoretically, or a combination of two special functions. For example, beef and milk, and mutton and wool represent the two commonly accepted dual purpose functions or standards. The equation of value must be measured in such animals by their specific structural development. Although it is recognized that high milk production, extreme speed, or unusual block tests are antagonized in two purpose animals because of the alteration of structure necessary to harmonize or equalize these two purposes, they have a place in animal production. Student judging should so depict every purpose, relation, structural

development and special and combined functions that a perfectly clear analysis of these factors may be made before undertaking a decision in any class of animals. Otherwise gross errors may occur under the best of reasoning power. A broad working foundation, an accepted ideal, and a logical mind are herein extremely essential.

CHAPTER III.

THE MANIFESTATIONS OF FORM, FUNCTION, AND CAPACITY.

THE practical stockman is not directly interested with the intricate mechanism and development of the animal organism, yet there are certain manifestations of form, function, and capacity which stamp the value of an animal in its various phases of use and development. The value of an animal to the stockman is largely determined by the formation of the anatomy of the bony framework, the muscular development, the digestive system, the circulatory system, the mammary organs, the reproductive system, and the nervous development. Because of the close association of these attributes, from the standpoint of the stockman, a deficiency or weakness in development of any one would retard growth and normal development in the individual and sacrifice what otherwise might be cardinal points in breed, type or class attainments. An analysis, therefore, of their utility value is important.

Bony Framework.—The bony framework is a measure of the height and weight or scale which will be attained by an animal. Unless an animal possesses a foundation or framework whereon the muscular system may normally develop the ultimate size at maturity will be materially decreased. The sleek-bodied colt, the short, round body of the calf and the small, early maturing hog are indicative of insufficient capacity as associated with bone development. The size which an animal attains can be no greater than the maximum number of structural units which are normally present in the framework. An animal may be forced on the right kinds of feeds and thus induce greater development. However, such a method of feeding would not always be

prudent or profitable. In selecting live stock, therefore, special consideration should be given to the indications of normal development at maturity.

The size of the bone as exemplified in the canon of the horse, and in the leg of the steer, the hog, and the sheep are directly associated with the size and weight of an animal at maturity. The animal which inclines to fatten early in life before normal development has been reached does not possess the structural units to perfect normal maturity upon which the profits from live stock usually depend. Indications of the probable development are in evidence in the condition which an animal assumes as related to bone, muscle, and fat formation. The young animal or the matured animal low in condition indicate their probable maximum attainments by the character of the framework. While the spare, open development is characteristic only of the dairy animal, a certain degree of it is necessary in the other types in order that they may attain the maximum degree of size, form and finish. Early fattening qualities, except under certain specialized conditions, such as in the baby beef animal or other early market maturing qualifications, as fixed by farm practice, are antagonistic to maximum development. Animal attainments relating to size are measured almost entirely by the foundation structure imposed in the bony framework.

Muscular Development.—With the exception of the dairy cow and wool sheep, the value of domestic animals is directly or indirectly dependent on the degree of muscle formation. The value of the beef animal, the mutton sheep, and the fat or bacon hog is directly dependent on this attribute. The value of the draft horse, heavy and light harness horses, saddle horses and ponies are dependent on this qualification, yet in each the manifestation of it is developed in a different form of energy or work. In the dairy cow and the wool sheep the muscular development is of secondary importance because the usefulness of these animals is measured by their capacity to produce products not dependent on the degree of muscle formation. The dairy cow produces milk, the maximum degree of muscle and fat formation

being directly antagonistic to the maximum degree of milk production. The wool sheep is measured in value by its output of wool, regardless of its value from the mutton standpoint. The value of the horse is measured in terms of muscular development, although the kind of work and its degree of attainment is greatly different from that expected in meat-producing animals. The character of the muscular system is a measure of work in some form, yet association with other attributes should be clearly fixed because of the final balance of the manifestations enumerated under form, function, and capacity.

Digestive System.—The digestive system of an animal is of specific importance because an animal grows and becomes useful to a degree dependent on the amount of food consumed and its elaboration or manifestation in the various forms of animal energy, whether it is meat, milk, wool, or horse power. The measure of value in an animal is therefore determined by the digestive capacity to a degree depending on the character of energy to be produced. The manifestation of a strong digestive system is evidenced in the length, depth and width of the barrel, this in turn being influenced largely by the maximum degree of development possible in the bony framework. The direct association of this attribute with constitution, vigor, and general capacity is readily apparent from an analysis of these various factors in detail.

Circulatory System.—The bony framework, the muscular development and the digestive system constitute the gross attainments necessary for an animal to assume shape and continue normal development when properly associated with the other life-giving functions. From the stockman's point of view there is nothing more important than the circulatory system on which life-giving depends directly, and in one instance the development of a specific function, namely, the milk-giving capacity of the dairy cow. In formulating the value of a dairy animal one of the chief requisites for consideration is the degree of development of the circulatory system, especially as evidenced in the mammary system. The elaboration of milk from the gross

food products to the finished product is vitally connected with the circulatory system, as the blood carries the elements of milk elaboration. The stimulation received, therefore, from the blood supply measures quite accurately the capacity of an animal and the profits which will be obtained therefrom. Although the evidence of a strong blood supply is especially significant in the dairy animal, it is of no less importance in the animal which is used for draft, light harness or saddle work, or in those animals which are used directly for food-producing purposes. The blood supply and the energy which it carries in the way of assimilated food materials is all manifested in some specific way no matter what the character of work to be performed. The amount and continuity of work is thus measured by the circulatory system which carries the elements or products of energy to the specific place of use.

Mammary Organs.—The mammary organs or the mammary glands are of special significance in the dairy cow wherein stimulation of milk-giving capacity has been increased by breeding, selection, and by the administration of proper food materials. Although it is in the dairy animal that the most vital consideration is usually given to the mammary organs, they must, of necessity, become a consideration, either in the meat-giving or work-producing animals. The difference in the degree of development in these three broad classes of animals is not as great as might be first suspected. The dairy cow is measured by her milk-giving capacity, the meat-producing animals by the amount and quality of the meat products which they elaborate, and the work-producing animals by the quality of the offspring as suited to the production of energy or work in their various phases of development. The mammary system should be considered, therefore, as an important part of animal attainments regardless of the specific use of the product obtained from the individual or future generations.

Reproductive System or Breeding Capacity.—The measure of value in a breeding animal is largely centered in its capacity to reproduce like attainments of the individual in question. The reproductive system, therefore, becomes an important

problem in analyzing animal value. The breeding animal should clearly indicate its capacity for the reproduction of not only its attainments as a pure bred, but also as exemplified in the market animal. The consideration of the reproductive functions from the standpoint of the breeder is one of practical value. In making a study of the individual its probable reproductive powers should be considered in conjunction with the intrinsic value of the animal itself. It is only when these two factors are properly correlated that a breeding animal can transmit to its maximum capacity the qualities which are of vital importance to the breeder in the reproduction of pure bred animals and the production of market individuals with an outcome.

Nervous Development.—The nervous system or nervous development of an animal may be divided into the nervous or highly organized, the lymphatic, and the sluggish temperaments. Each of the three is characterized in various individuals representing the breeds of domestic animals. A nervous temperament is characteristic of the dairy animal in which all of the energy from the food materials is manufactured into milk with the exception of that used in body and reproductive maintenance. The typical dairy cow is spare and lean in conformation, as this condition is evidence that the food is being used as indicated above. A highly developed nervous organization is as closely associated with maximum milk production as the lymphatic or less active temperament is associated with fat production. The two are antagonistic, one representing the result of elimination, as evidenced in high milk production, and the other in accumulation, as evidenced in muscle and fat formation. Indication that food is being so used is as much a part of animal attainments as a strong, healthy digestive or circulatory system on which life directly depends.

The sluggish temperament is the lowest form of nervous development and one which should not be directly associated with any specific type of animal. Manifestation of a sluggish temperament is an attribute not to be desired. It is suggestive of lack in constitution, a weak circulatory system, and improperly associated nerve development. The

fat animal which manifests or shows a sluggish temperament may, from one standpoint, apparently be a profitable animal. When balanced, however, with the other attributes of chief importance to the stockman, the animal possessing such a quality is not a desirable specimen for reproductive or market use. The lack of nerve force is evidenced in one way or another and will ultimately depreciate an animal in value to the extent of the insufficient nerve force manifested.



FIG. 3.—Students judging beef cattle in the ring—avoid handling animals unnecessarily.

CHAPTER IV.

METHODS AND PRACTICES IN JUDGING AND SELECTION.

Definition.—Live stock judging, strictly defined, refers to a determination of the value of a single animal or the comparative value of a class of animals for a specialized purpose. The individual animal may be judged in a similar manner to a class of animals, yet the student in so doing must have learned to attain, either through practical experience or college training, a fixed mental picture of an animal which conforms to the established ideal of the type in question. In reality, therefore, one animal may form a class as the ideal animal, or a standard of comparison must always be clearly fixed in the mind before judging or fixation of value logically begins. In judging or ranking animals, the problem is to establish a rating or rank according to the conformity to the ideal, and from this affix a productive or market value, the latter being the final test of block animals. Whether the animal is considered from the standpoint of breed, show, work, or for the block, there is a fixed value which depends on the breeding, individuality and the environment to which the animal has been subjected. These are the main points or factors of development with which the student must familiarize himself before judging, in its strictest sense or selection, based on ancestry and performance records, may be accurately performed.

Live stock judging, broadly defined, may be considered from the standpoint of comparative show yard placing, where exterior qualifications or characteristics are the only guides, or from the standpoint of individual herd or flock merit based both on individual characteristics and performance records. The work of the student, in making comparative

or show yard placings, may be specifically considered animal judging, his opinion being based solely on exterior characteristics. The work of actually detecting the best individuals in the herd from their ancestry and actual performance records may be considered animal selection. It is rather unfortunate, especially with certain classes of animals, that the latter cannot be successfully carried out in show ring judging. In facilitating the passing of judgment on animals, therefore, the student judge must learn to detect the points which indicate value for special productive purposes. The determination of the value of animals through the form or conformation lies at the basis of successful and popularly so termed live stock judging.

Objects.—The main objects in judging live stock are twofold. First, the detection of the characteristics which fit animals for breeding or reproduction; and second, for work, broadly defined, or for the block. While the two purposes are in a sense closely related, from the viewpoint of the judge, there are important differences which should not be overlooked. The breeding animal, for example, should be judged from the standpoint of present individual excellence, and the likely transmission and continuity of these characteristics to the offspring. In judging an animal for the block, any future usefulness beyond the fattening or finishing period may be entirely disregarded, since the present intrinsic value of the animal to the butcher is the real paramount factor for consideration.

Animal Knowledge.—The increasing magnitude of student and show yard judging has brought into employment certain customs in establishing the value or rating on the numerous classes of animals coming before the eye of the judge. While the exterior characteristics are not absolutely reliable guides, more especially in breeding animals, a history and knowledge of the performance of other similarly made animals and keen detection of their merits or faults will enable the student to form very accurate conclusions in the judging ring.

In judging breeding animals there is no absolute assurance that certain desirable characteristics will be transmitted.

Former records of other animals of like conformation must be used as a guide or basis for passing judgment or opinion. This is in reality the basis of all live stock judging, as the accomplishments of one animal under certain known conditions may reasonably be expected to obtain under like conditions in other instances. If it were not for this information which has been accumulated, either in writing or through the teaching of practical stockmen and college live stock judges, the subject would not have attained its present magnitude or accuracy. It is only by correlation of individual characteristics, as measured by the success of other animals and actual records, that any assurance may be obtained regarding the value of an animal as a breeder. When judging direct fitness for the block or for dairy purposes all breeding and ancestral records may be disregarded as all practical evidences of utility and quality are largely visible on the exterior of the animal. This, however, has been made possible only by careful studies of the conformation of work, milk, and meat-producing qualities of other similar animals.

Ideals, Qualifications, and Consistency.—The beginner in live stock judging must necessarily acquire a definite working knowledge of the principles on which stock judging is based. He should learn the peculiar structural form of the various types, breeds, and classes by studying each animal individually. By so doing, he is soon able to correlate the various parts and thereby fix the individual as a whole in its relation as applied to the various standards of excellence employed. In the show ring the method of procedure is different. It is not a question necessarily of depicting the minuteness of form, or becoming acquainted with the various structural parts or units. The judge of long experience grasps and analyzes the form of the animal or animals as a whole and makes the alignment according to merit or conformity to the standard of excellence used for the type or breed in question. The requirements are that the animal coming closest to the ideal standard be selected to head the class. Thereafter, each of the others should be placed according to the degree of conformity with the animal selected as possessing the most ideal type qualification.

A judge should have a clear, concise idea of each standard with which he is expected to compare and place competing animals. Unless he is thoroughly acquainted with these standards it is impossible to determine which of the animals in the class should be taken for the ideal or standard. One of the frequent troubles encountered at the smaller live stock shows and fairs throughout the country is the lack of an adequate classification providing for the separation of each distinct type and breed. Wherever such a condition exists there can be no true standard, and consequently no justification in the methods of judging pursued or the decisions made. Ideals are the foundation of equity and justice in live stock shows. Unless the judge has an adequate classification whereby he may establish an ideal and place the animals according to their degree of conformity, his work will necessarily be faulty. It is impossible to judge a Standardbred and a Percheron in the same class, because an ideal must be selected or a definite purpose adhered to in a written or mental standard of excellence. Where two distinct breeds of such varying conformation compete against each other this is manifestly impossible, as no two animals with extreme breed types can have an equal or even a close relationship with any single standard of excellence.

Type and Breed Standards.—Live stock judging as ordinarily practised in the show ring or by prospective buyers is not accomplished by the aid of the score card. However, most colleges have adopted a system of score card judging, especially for beginners in the subject. This is done to familiarize the student with the various structural parts of the animal and to fix in the mind the relative importance of them. For college work score cards are usually arranged to cover the types of animals and not individual breeds. This enables the student to become familiar with the various types of horses, cattle, sheep, and swine. After these basic principles of type have been mastered a fuller and better understanding of the various breed characteristics may be obtained by consulting breed standards of excellence adopted by the registry associations or by reading descriptive literature on the subject.

Most breed associations, with the exception of horse registry organizations, have adopted a standard of excellence and scale of points for the breed represented. Usually it is not practical to use these standards for show yard or market judging. They serve as an important guide and not as an absolute standard for practical judging, except in special cases, such as scoring for advanced registry in dairy cattle.

Score Card Judging.—From the viewpoint of the student judge, there are three well-defined methods of arriving at the value of an individual or a class of animals. The first is by the score card method, the second by examination which is followed by oral or written comparisons, as practised in advanced classes of live stock judging, and the third by simply placing the animals in their comparative order of merit, as practised in the show ring. Each of these methods, after the first, is perfected by having attained proficiency in the preceding one. The score card is not adapted to practical live stock judging, it being used solely as a means to an end. The score card system of judging is used in the class room primarily to instruct beginners in the fundamental art of judging. Its principal value is in teaching the location and value of the various parts of an animal. After proficiency is obtained in this part of the work, the score card is usually replaced by more advanced methods and practices.

Practically the only value of the score card, aside from that mentioned, is its use in standardizing the value of an individual animal. It is used for this purpose largely by dairy cattle record associations in conjunction with advanced registry tests. Certain score card requirements are often employed by these associations in measuring the value of both male and female animals. In reality the score card is not practicable in live stock judging because a complete balance of points or a true decision cannot always be logically obtained. If there was a fixed unit of value to each part of the animal, regardless of the development of other correlated parts, such a method might be satisfactorily employed. However, the value of an animal varies greatly for special purposes, this depending on the relative degree of perfection



FIG. 4.—Judging a Shorthorn bull class in the show ring.

of the related parts, thus making it impossible to establish fixed units of value.

Comparative Judging.—The method of judging by comparison is the logical result of score card proficiency. After the details of location, names and the value of the various parts of the animal organism are once mastered, a class of animals may be placed in their comparative order of merit and the reasons for so doing written or given orally. The former method is usually employed in the beginning to perfect briefness and accuracy. In the employment of the comparative method of judging it is necessary to have not only a clear idea of animal form, but also a logical mind in forming a complete or true balance of points among the animals under judgment. Numerous questions usually arise pertaining to the value of animal conformation in its relation to the various factors which must be considered. As there is no fixed rule which can be followed in these cases it is necessary for the student to have a clear conception of the value of various animal conformations in the many relations which they assume in the class room and on the farm. It is for this reason principally that score card judging is not the most satisfactory method to employ. It is this balance of the practical or productive capacity which must be considered in judging animals for specialized purposes. Comparative judging of individuals entails a complete harmonious balance of points which cannot give unjust or untrue decisions if based on fixed fundamental principles.

Show Ring Judging.—Show ring judging is a practical repetition of the work of the student in the class room, with the exception that reasons are usually not given for the rating of the animals, although from an educational viewpoint such a course would be practical and highly desirable. Modern show ring judging is based entirely on the evidences of utility and quality exhibited in the external characteristics. Blood lines are considered only to the extent which the animal shows improved breeding and pronounced individuality. Otherwise, animals are judged and ranked according to their individuality at the time judgment is passed. Form and quality, in the broad sense, include all essential considera-

tions in the show ring, as they exhibit in one way or another the possession or absence of the characteristics defined under all subdivisions considered in judging animal form. These two characteristics are inseparable from the viewpoint of the critic. The form varies according to purpose or utility, but if the correct form is fixed in the mind and the meaning of quality is clearly understood the fundamentals of judging are largely mastered. Gross faults in one or the other means a serious defect, and consequently the show ring judge is critical in his estimate of these factors. It is only in judging the horse, where action is a prime requisite, that the judge varies from these two broad standard qualifications.

The essentials for successful student or show ring judging are a keen vision in analyzing animal form, in the broad sense, and detecting the most devious faults therein. A fault once seen in an animal should be indelibly stamped on the mind and the degree of faultiness clearly fixed. Unless such a plan is pursued, the judge not only becomes entangled in his original impressions but tiring of the judgment through prolonged decisions is apt to render them even more faulty. A steady and fixed purpose, alert detection of merit and faults, and prompt, yet deliberate decisions are responsible for making a successful show ring judge.

Fundamental Requirements in Judging.—Judging involves the possession of five attributes or attainments. These will be considered in their order.

Utility Requirements.—It is necessary to have a definite knowledge concerning the use or utility of the animal. Every factor or part directly or indirectly related to the purpose or productive end should be mastered. Merit as related to the type, breed, or class, must be firmly fixed in the mind. Every requirement of the animal or animals in question must be clear to measure value accurately. This involves a broad foundation knowledge in animal breeding and work, meat, market, show, and speed requirements.

Keen Observation.—The accuracy of a decision in the show ring, feed lot or stock yard, where many decisions are daily intuitively made, is largely dependent on the powers of observation. The good and the bad points, whether gross

or largely apparent, should be detected with promptness. The possession or acquirement of this faculty is not always deep seated, yet it is a foundation principle in live stock judging. The degree of possession or attainment of keen observation measures one of the important attributes of a keen live stock judge.

Comparative Qualities.—The individual animal is measured by a standard, which may be real, written or pictured in the mind or on canvas. Under any condition, it is the standard by which the judge pronounces the value of an animal. In a class a comparison of the animals under judgment is of greatest concern to the judge. While the written or oral standard is involved in selecting the best individual in the class, thereafter this individual becomes the ideal by which the other animals are rated. Comparison not only involves a strict analysis of the form of each animal, but a comparison of the simultaneously located parts to determine the comparative degree of merit. This comparison must of necessity be in accordance with the purpose or utility standard for the animal under observation. The viewpoint becomes of special significance at this time, as animals have component values which differ, depending on type, breed, or class conformity.

Balance of Points.—The balance of points involves deeper thought and greater responsibility than any other factor mentioned, as it is on the equated knowledge that a decision is reached. Individuals differ greatly in merits and faults, both as individual units and in the correlation of parts within the individual. If all animals differed precisely the same in their component parts, and if there was a fixed value to these parts for every purpose of animal formation and design, judging would be simple indeed. Because of the great variation in animal conformation, as related to the location of merits and faults in the individual structure, it becomes necessary to balance the points of form which are at variance. For example, it is easy to decide on the objectionable features of an open shoulder or a flat rib in a fat steer class. It is not so easy, however, to decide on the relative merits and demerits of an animal with a low back,

scantily covered with flesh, and one with a drooping rump, thin thighs, and high or open twist. This involves an accurate balance of points to determine the relative value of the animals concerned. It involves principles fixed entirely on utility requirements and the comparative value of correlated parts or units from which a conscientious, conservative judge will not swerve.

Decisions.—The decision is the logical result of the foregoing factors involved in rendering judgment. Decisions should be made promptly, yet with deliberation. A decision once made is charged against the animal knowledge which the judge possesses. Careless decisions not only reflect on the judge but often on the animals and their owner as well. It is a rare thing that a good judge changes a decision if he proceeds understandingly concerning the standard by which the animals are being judged. A misunderstanding of purpose or utility requirements could easily be responsible for a complete reversal of a decision. No other just cause could be advanced for a change of a decision. Keen discrimination and fixed principles are therefore important in analyzing, comparing, and balancing the points under observation, the sum total of which make an honest, accurate decision possible.

Uniformity of Decisions.—Correct ideals are largely responsible for accurate and uniform decisions in the judging ring. Unless the student possesses a keen knowledge of animal form and has a clear vision in balancing the various points of the animals in a class, there is likely to be a serious lack of uniformity in the decisions made. Because of the probability of such a condition, it is exceedingly important that the foundation principles for judging practice be correctly fixed in the mind. This involves, not only a knowledge of the exterior characteristics of the animal, but also of the vital machinery of digestion, circulation, nerve force, reproduction, and development. The value of a strong head, a broad muzzle, and capacious chest development, and the relation of them to animal vigor, and a long period of usefulness, must be fully understood. The value of nervous development, style, action, symmetry of form and handling

quality, must be clearly fixed in the mind of the judge before he can proceed with a continuity of decisions which will stand the test of minute criticism.

Fixed ideals of the various types, breeds, and classes of animals are the foundation for uniform and correct decisions. After a type is once established by the judge in a class it should be followed closely until the animals are all ranked according to their conformity to this type. It is only in exceptional cases that it becomes necessary to break type and in instances of this kind there must be some unusual reason for so doing. If there is a specific ideal or type of animal established at the head of a class, there will rarely be an occasion for following it with an animal of another distinct type. In judging animals it is universally recognized that there is a distinct type best suited for all specialized purposes. A distinct break in type would therefore be adverse to such a principle. In a class for breeding animals such a condition might arise through the presence of disease, or from lack of proper constitutional development or specific breed attributes. An animal lacking in constitutional development or one in an incipient or advanced stage of an hereditary disease should not be given priority in a class of breeding animals. A clear understanding of the purpose for which an animal is bred, a distinct conception of the type adopted for the standard, and the reasons for discarding an animal which does not conform to the established type, are necessary for convincing, uniform, clear-cut decisions.

Position of Animals.—In critically examining animals in a class or otherwise, it is advantageous to have them all headed in one direction in a uniform line on a level surface. They should be lined up on a smooth, even surface, for if placed otherwise the animals will usually assume an ill position, appear larger or smaller according to the viewpoint from which the examination is made, or such an unnatural position may accentuate merit or hide or cover defects. If the viewpoint is below the animals, they will appear larger, while if it is above they will appear smaller. It is very easy to deceive the eye in this respect. The animals should be placed level from the broadsides view. It is

important to have the front feet on a level with the rear feet. If otherwise placed they will appear high or low at the withers, as the case may be. A position assumed to emphasize good qualities is permissible while one assumed to cover faults is deceit and, therefore, objectionable. There is always an opportunity to deceive the eye, and especially is this true with the beginner. Salesmen and showmen sometimes take advantage of these points to sell or exhibit an animal which otherwise might be an encumbrance on their hands or a loser in the show ring. Many other gross and minor practices are resorted to in showing animals. The fairness of such practices are, of necessity, questionable.

System.—Decisions are reached most accurately and comprehensively by using some definite method of procedure. This is important for the beginner, although the best judges use system. This may not be readily apparent to the observer, but if a close watch is kept on the movements of the judge it will be noticed that he usually has a definite order in which he surveys the animals in a class. Even the judge himself may not be aware that he uses system in his work. In such cases it is merely intuition which prompts and which thereby obtains the most accurate decisions in the briefest period of time.

Point of Approach.—In examining a class of animals the student should proceed as quietly as possible, approaching the animal from the front, not only to avoid frightening a nervous animal, but because this is the logical viewpoint from which to start the examination. It also permits a student class to proceed with work in a regular manner without any unnecessary delay. This is very important, especially where a large class of animals is to be gone over. Regularity and promptness are not only important but necessary in live stock judging for accurately coördinated results.

General Examination.—In judging live stock it is important that some regular method of procedure be employed to determine the merits of the individual or class. By so doing much greater headway can be made than by following a haphazard method of making the comparisons. If the animal

is properly viewed the student or the prospective purchaser will not allow any important point to pass unnoticed on the first examination. This is very important in judging, as first impressions are always valuable. If a judge allows himself to get in the habit of returning the second or third time to reinforce his previous impressions, he is very likely to become biased or render faulty decisions. For this reason every part of the animal in view from any particular angle or position should come critically under the eye of the judge. Much of the work can be done by taking certain standard points of view and make it a practice to get all the information desired from the first examination. If the class of animals is properly arranged for judging this can be done conveniently. It will save much annoyance to the judge, the animals, and the spectators.

Front.—The first view of an animal should always be from the front, as many of the impressions gotten from this position will enable the judge to eliminate undesirable animals immediately. While this statement has qualifications, it is true in a large measure, and especially so with pure-bred stock where breed type enters largely into consideration. The head is an excellent index of what may be expected in the animal when viewed from the side or rear. Animals with strong breeding qualities as a general rule have very characteristic clear-cut features about the head. From the front view the shape and character of the head, neck, width and depth of chest, set of legs and feet, and the quality of all of these parts may be determined without actually handling the animal. While it may be difficult for the beginner to keep from handling, such a practice will ultimately lead to undesirable results. In making a critical study of the head, the length and width should be determined, especially between the eyes and across the forehead because of the special significance of a strong development in these parts. A broad head indicates intelligence and a mild or kindly disposition. This is especially so in the horse, because docility and intelligence are naturally looked for in such animals. However, it is no less important in cattle, swine or sheep, as a broad, clearly defined head

is a universal indication of intelligence, docility, and thrift. The size of the eyes, their prominence, brightness and expression should all be given due consideration as these characteristics should be prominently developed.

Side.—Viewed from the side, every part accessible to the eye should be examined carefully. The general style and symmetry, length and depth of body, chest capacity, set of legs and any other special attribute of form or quality peculiar to the animal under consideration should be carefully fixed in the mind from this viewpoint. No factor which should be considered in the final balance of points should be omitted from the first examination. This is of unusual importance where the class of animals is large.

Rear.—In viewing the animal from the rear the width, fulness, and depth of form should be examined carefully as well as the length, position, set, and shape of legs, especially in the horse. After this examination is completed the opposite side from the one first viewed should be gone over to detect anything unusual or faulty in the conformation which would give the animal an unsymmetrical appearance or depreciate its value in any way. This is of special importance in the horse, where a blemish or an unsoundness would be a serious detriment.

Action.—Action is of primary importance in the horse, although in judging breeding animals of any description due consideration should be given to this point. Animals which have been pampered are often stilted in their action which is not in keeping with strong prepotent reproducing qualities. While it is desirable to have breeding animals showy in form by having a reasonable amount of finish, this should not be gained at the expense of depressed vigor or faulty action. In judging breeding animals of any description each animal in the class should be walked to determine any unusual condition or fault in form and action. What may apparently be an ideal animal in form at rest will be depreciated greatly in value because of faulty movement or action. A breeding animal should be useful for a period of years and a well-balanced condition in form, constitution and action is essential to this end.

Handling Animals.—The handling of animals is involved in determining conditions which cannot be readily perceived by the aid of the eye. In the several types of animals there are various parts which must be handled more or less carefully to determine the condition of the structural parts.

Amount of Handling.—It is always preferable in judging a class of animals to handle them as little as possible. While it will be necessary for the beginner to occasionally reinforce his opinion obtained with the eye, it is preferable not to handle an animal any more than is absolutely necessary. It is very easy to get in the habit of allowing the hands to do that which should be determined by the eye. This not only involves risk but prolongs the examination and decision. The best judges of live stock, by constant practice, have developed the capacity of comprehending or determining what lies under the skin of the animals largely by the aid of the eye alone. While it is necessary for the best judges to use the hands at times, and especially where the decision is close, it is not good general practice. The beginner should always use precaution to see that he does not form the habit of relying on the hands, except in a case where a close decision justifies the practice.

Determining Handling Quality.—Quality can often be determined or measured largely by the eye alone. It is permissible, however, to use the hands to a limited degree to determine the handling quality of the skin, its fineness, pliability, and elasticity. The condition of the hair and skin may be determined by the hands, although this is not always necessary.

Mammary Development.—In judging dairy cattle the development of the mammary system is of special significance because of its direct relation to the value of these animals. The hands may be used to determine the pliability and elasticity of the skin on the udder, the length, size, and shape of the mammary veins, the number of branches, and the size of the mammary wells. Other than this the eye should be used to determine the relative merits of the mammary system.

Determination of Unsoundness.—Unsoundness is of primary importance in the horse. Any unsound condition

should be determined as far as practicable by the eye. Questionable cases should be determined by the use of the hands. Too much handling is not a good form, however, and should be avoided.

Examination of Sheep.—In judging sheep a thorough examination by the use of the hands is necessary. The practice is perfectly justifiable on the ground that the form of a sheep may not be in conformity with the outline of the wool covering. Sheep are trimmed to give beauty of form and to cover faults and defects. While the latter practice is natural, it is questionable whether it is justifiable.

Any fault or defect in form can easily be determined by a rigid examination with the hands in all important parts considered in animal judging. The method of examination will be explained more fully in a subsequent discussion.

Exterior Faults and Defects.—The three most common kinds of faults and defects are classified under the terms unsoundness, blemishes, and operations which are of importance in judging as described below.

Unsoundness.—Unsoundness is of particular importance in the horse. Because of the character of work for which the horse is used it is of special importance to have a sound and otherwise healthy animal. While this is important in judging any class of animals it is especially necessary in the horse when used for hard and persistent service. Cattle, hogs, and sheep intended for the block may have slightly imperfect structural forms and still be satisfactory meat producers. If they were to be retained for a period of years, like the breeding animal, the pleasure or work horse, it would be very important to have them free from any hereditary or predisposed unsoundness. Of all the animals named, however, the horse is of special interest, as severe driving or work often develops troubles which might not occur if they were not subjected to actual road or field work, something which other farm animals are not required to do. On the streets of the large cities horses are much shorter lived from an active utility standpoint, because their constant contact with the hard pavements usually aggravates an unsoundness or develops any predisposed trouble. Many of

these horses, if kept on the farm, might never develop unsoundness. City-used horses may be rejuvenated by a rest and the less exacting service in the field or on the farm.

Blemishes.—A perfect specimen of a horse should not only conform in his lines to the standard of perfection, as outlined for the type or breed, but there should be absolute freedom from blemishes and unsoundness. While an animal may be a perfect breeder or worker, although blemishes occur, such marks are unsightly and decrease the market value. An unsoundness, on the other hand, may not only seriously interfere with the usefulness of the animal but in many cases such troubles are transmitted. A predisposition to such diseases as bone spavin, side bones, ring bones, or curbs, often causes serious trouble. A blemish will neither be transmitted nor will it often interfere with the usefulness of the animal, unless it occurs in a serious form on some part of the leg or foot. When it so interferes with usefulness it becomes an unsoundness. Wire cuts, bruises, scars from cuts or abrasions constitute a few of the marks which are termed blemishes. Any scar or mark which is acquired through accident may properly be termed a blemish, while an unsoundness is acquired through transmission or a predisposition to the trouble because of faulty conformation, or from a severe accident, or unusual strain. Some of the more common and serious kinds of unsoundness will be described in the chapters on horses and mules.

Operations.—Operations on animals for improving show condition have been practised with considerable regularity and at times with much success, as far as the immediate results were concerned in the show ring. From the standpoint of the individual as a utility animal or as a breeder, such practices are not justified. Show ring judging from this standpoint has not been all that it should be. While the individuals may be otherwise meritorious, if there is any indication of an operation having been performed, such animals should be discriminated against severely. If an animal cannot appear in the ring in a natural condition it is not justifiable to allow such animals to win over those

which are normally constituted, although less perfect than those made so by superficial alterations.

There are several very satisfactory operations which may be performed without marring the appearance of the animal or without causing abrasions of any kind. These conditions should be carefully observed in examining an animal. Usually close examination will reveal any alteration of structure from an operation. It is highly important, therefore, that the student become familiar with the natural structural form and condition of the animal in order that he may determine any unusual alteration of the nature suggested.

One of the most common operations is that known as "bishoping" the teeth to make an animal appear younger than otherwise. This consists in burning artificial cups in the teeth which normally develop and disappear in the animal between the ages of five and eleven years. This condition is often used to advantage to make an old animal appear young and thus sell more profitably. Another operation, quite often performed, is that of injecting air beneath the skin to make the animal appear full and plump. This may be done to fill out the hollows above the eyes which appear with old age. It may also be used to improve the condition of a once "sweenied" shoulder or atrophied muscles in other parts. Nerving or nerve cutting is also practised to prevent lameness.

Functional Points in Judging and Selection.—In judging animals in the show ring the exterior points of merit are largely the sole basis on which decisions are made. However, in the actual selection of some animals, especially horses, there are certain points which are vitally important in estimating future usefulness. Selection, as specifically differentiated from animal judging, brings into use certain preliminary qualifications for detection. Real selection, for the purpose of learning all of the good and bad points, has underlying determinations which must necessarily be determined outside of the class room or judging ring. While attention should be given to these factors in other animals they are not equally important.

Horses.—The judging and selection of the horse differs fundamentally from other animals because of the relation of its disposition, temperament, soundness, and action to its value in the breeding or commercial world. A horse must possess all these additional attributes to make it most acceptable and serviceable.

Unlike most other farm animals the principal value of the horse lies in the amount and quality of work which can be performed. This of necessity requires strict observance to the special attributes named. The horse should therefore be examined in and out of the stable. While customary student or show ring judging will not permit this additional examination, it is important that it be accomplished when conditions warrant.

An examination of the horse in the stall will reveal many of the vices which mar and prevent a ready sale of an otherwise valuable and well-formed animal. The most common vices detected in the stall are cribbing, weaving, wind sucking and halter pulling, all of which lower the value of an animal materially. Unsound feet or legs may also be frequently detected by the position in which the animal stands. When the weight is thrown on one leg or foot, either in the forequarters or hindquarters, there is indication of lameness or unsoundness. Weak or imperfect eyes may also be determined by the size, shape, and condition which they assume when the animal is brought from a dark stable into the outside light.

After the test of the eyes is completed it is of vital importance to examine the condition of the wind carefully. Unsound wind is detected by hitching the animal to a vehicle and giving severe exercise. Any questionable unsoundness of wind from collar or harness adjustment should be decided by having the harness readjusted or by exercising the animal vigorously under the saddle. After stopping the animal suddenly, the judge should advance quickly to the nostrils and note the character of the breathing. If it is characterized by a wheezing sound the probable trouble is either roaring or whistling. When the breathing is irregular or spasmodic the animal is likely affected with the heaves. In the latter case, the air is apparently partly expelled

from the lungs, respiration stops for a short period when the breathing or expulsion of the air is continued. Heavy horses are characterized by irregular depressions of the flanks, these movements being coördinated with the stoppage and expulsion of the air from the lungs.

Other Animals.—In other animals than the horse contagious, infectious, and hereditary diseases are the most likely troubles or imperfections which cannot always be determined in the show ring. For example, tuberculosis and contagious abortion in cattle, cholera in hogs, and parasitic diseases in sheep are the most common, and the ones usually the most important to detect. Unsoundness, as applied to the horse, is not an important determination in cattle, swine, and sheep. Their individuality, outside of precautions against disease, can be determined very accurately from the exterior characteristics. Breeding animals may be considered as the exception.

In the actual selection of a male or female for breeding, they should be tested if feasible to do so. This is especially important in selecting high-priced breeding stock. However, it may not always be economy or good policy to test young animals. In fact, a large percentage of both males and females are sold at an age when testing would be impossible. Average or moderate-priced animals are seldom tested for breeding qualities. The comparative financial risk is not sufficient to warrant such a method of selection. Older and more valuable animals are worthy of greater consideration. Sires should be tested with females which have proved their merit in the breeding herd. Likewise, females should be tested with sires which have proved their efficiency. Any special merits or faults are thus readily detected. The animal used for breeding to the untried individual should always be a tried and proved breeding animal. Otherwise the test is of no value.

Promptness, Accuracy, and Thoroughness. — The student should proceed with the examination of the animal as rapidly as possible. However, it is necessary to take sufficient time to judge the various parts accurately. If this is not accomplished in the beginning it usually leads to hazy, uncertain

conclusions. The first decision, if carefully reached or decided upon, is usually the most accurate, granting that the student has proceeded in his examination with a determination to locate the various points of merit accurately and place the class accordingly. If an animal is viewed hurriedly and no definite impression is made of the basic merits or faults possessed it will usually cause misjudgment. It will save time and usually induce greater accuracy to survey carefully both major and minor merits and faults during the first examination.

Arriving at Decisions.—Decisions are based on ideals and reached in the following manner:

Basis of Judgment.—Live stock judging implies the passing of judgment on a class of animals from some specific viewpoint. The establishment of distinct types, breeds and market classes is fundamental in fixing the viewpoint from which the student or show ring judge may work. Modern live stock judging implies a fixation of type from the standard of which the awards in a class must be made. It is very important that before judging begins a standard of comparison or purpose be established upon which the decisions may be based. A class of mares, for example, may be judged either as purely draft animals, as breeders, or a combination of the two. Unless the standard is understood in the beginning there is likely to be a great variation in the awards owing to the difference in the standards selected. Two mares judged strictly as draft animals might be reversed when judged from the breeding standpoint. It is this basis of judgment which must be kept constantly in mind to avoid erroneous decisions. In judging any class of animals, the basis or standard of comparison should first be clearly fixed in the mind, and then each animal should be placed according to the degree of conformity to this basis or standard. This rule is fundamental in all live stock judging.

Culling Inferior Animals.—If the class which is being judged contains a large number of animals it is usually good practice to go through the entire number and eliminate those which have no chance of winning a place. By so doing, it will avoid any burden to the mind or eye which the viewing

of a large number of animals might cause. After eliminating all of the inferior specimens, the selected class should then be examined carefully and the remaining number placed according to individual merit. It is not good practice to cull the class to the exact number which it is desired to place. This is especially true if there are no outstanding winners. If the animals are of about the same merit when the points are balanced it will be advantageous to retain several surplus animals in the short leet from which the winners are to be selected. This will avoid any likelihood of eliminating a possible winner from the selected class.

Draft or Short Leet.—The term draft or short leet is the term applied to the animals retained in a class to be placed according to their comparative merit. If the class is small in number it is not necessary to eliminate the inferior animals or resort to the short leet, as the eye can readily determine those which are entitled to win. At some of the larger shows, where several animals are brought into the ring, it is necessary to use the eliminating process. In a small class it is neither necessary nor advisable, unless for some unusual reason.

CHAPTER V.

FACTORS AND PRINCIPLES APPLICABLE TO THE JUDGING AND SELECTION OF LIVE STOCK.

INDIVIDUAL MERIT.

IN judging the various types, breeds, and classes of animals, there are certain fundamentals which are directly related to their form and functioning capacity. These points are all of primary importance and may be accurately measured when compared with the proper standard significant of the breed, type, or class in question.

Utility.—A proper definition of the term utility is fundamental for accurately judging all classes of live stock. Insufficient evidence of utility or conformity to a standard is largely responsible for eliminating individuals from a placing. Animals are not always eliminated from the judging ring because of absolute inferiority, but rather because of improper adaptation to the standard with which they are to be compared. Before making a decision on a class of individuals, one should become thoroughly acquainted with the purpose for which the animals are being judged. Unless such information is first obtained gross errors may occur in the decisions.

There are instances where the most inferior animal in a class might be placed at the head because of its closer conformity to the type taken for the standard. A fat steer in a feeder class might be an outstanding winner, barring purpose or utility. It may readily be supposed that such a steer would be popularly classed as deserving of first merit, yet utility or conformity to purpose must be taken into consideration. If such a class is being placed from the standpoint of feed-lot adaptation then the thinner and less attrac-

tive type of animal would rightfully be the winner, other conditions being equal. In other instances the round, sleek-bodied colt might be popularly classed as the most deserving animal, yet from the standpoint of future development and final value, the animal with the larger bone, more angular and growthy form should be selected.

Numerous other examples could be cited where the most inferior animal, barring adaptation to purpose, might be placed first in a class. A definite knowledge of utility, however, is the foundation and keynote of successful live stock judging. A class of animals should never be given a rating before information pertaining to their usage is obtained. One class might be placed in a certain order and later in a reverse order by changing the viewpoint for making the decision. The student should be watchful in placing classes of stock, as utility or usefulness is the real foundation on which decisions are made.

General Appearance.—Ordinarily there are certain distinctive characters possessed by an animal which distinguishes it from all others. The first impression obtained of an animal implies general appearance, signifying the size, shape or form, weight, color, peculiar markings, symmetry and general demeanor, all being of special significance in approaching or establishing the degree of conformity to the standard implied or written. The factors pertaining to general appearance should be determined at a distance and not at a close angle, as such a position would likely obscure symmetry or peculiarities in the animal under observation. General impressions should always be obtained at a distance sufficient to bring the real utility value in the proper sphere of form and development. Other more detailed studies may be made at close range which will enable the observer to obtain a clear-cut picture of the value of an animal in actual service. This involves a determination of the value of several fundamental factors significant of the various types, breeds, and classes of animals, as discussed in the following.

Form.—The form of most domestic animals, especially meat-producing or block animals conforms closely to a

parallelogram. The principal exceptions are the dairy breeds of cattle, the Thoroughbred (*running*) horse, the bacon hog, the Merino breeds of sheep, and one or two other breeds not of special importance. This type has been developed because of the value accruing through the increased amount of edible products in animals of such conformation. The form of practically all English and Scotch breeds of live stock is parallelogramic, barring a few important exceptions. From a knowledge of these facts, students in judging can very often determine in a general way the points upon which stress should be placed.

In judging live stock, if a proper analysis is made of the various types of domestic animals, it will not be extremely difficult to decide on the general merits of any class of individuals. While this knowledge cannot be used in making keen discriminations between individuals, it can be used very successfully in establishing a foundation for the beginner. If the particular points qualifying the specific type of an animal are conjoined with the general type upon which the animal is developed, it will be especially helpful in determining the rating of a class. For example, in a class of pure-bred animals, if the points indicating breed character have been mastered and they are properly correlated with the general form of the animal, the rating of the animals in the class can be practically determined.

One of the next important types of live stock with which the student has to deal is the angular, wedge-shaped form of the dairy cow. If the type of the dairy animal is once well fixed in the mind and the points of utility clearly defined and distinguished, it will furnish an excellent foundation on which to build a knowledge of the important differences in the various dairy breeds.

The bacon hog is different from the fat type of hog, especially in the width of the animal, which is comparatively narrow considering its length and depth. It is necessary to have a long, smooth, deep and lean side in the bacon hog, as it is not possible to obtain bacon characteristics in the square, compact form of the fat hog which conforms to the general type first described. This is one of the exceptions

in the English type of stock which is very largely bred on the low, square, compact order. From the breed standpoint the two prominent exceptions are the Tamworth and Yorkshire breeds of swine. The American type of hog is more nearly like the English type of beef and dual purpose cattle and sheep, *i. e.*, parallelogramic.

The Merino breeds of sheep, developed for wool primarily, have an unusual conformation due to the wrinkled, uneven condition of the skin and fleece. While the type of these animals is generally that of a parallelogram, their unusually wrinkled condition gives them an odd, ungainly appearance. This formation of the skin and fleece has added greatly to their value, however, because of the increase in the surface on which wool may be grown. The Thoroughbred (*running*) horse, which is bred for speed at the run exclusively, has developed into a long, angular, and racy type of animal. Likewise, the race-horse type of the Standardbred trotter and pacer has in many instances developed into a light, lithe type not characteristic of the road-horse type of this breed. With these exceptions noted, all of the important breeds of horses, cattle, sheep and swine should have a broad, deep, long, and compact or close knit and symmetrical form. This is essential in any breed of animals developed for work or for the production of edible products such as beef, pork, or mutton.

Height.—Height is of special significance in the horse. It is determined by measuring from the highest point of the withers to the ground. In other animals the height is a matter of symmetry in the correlation of other parts rather than an absolute determination to a fixed standard, as in horses.¹

Weight.—The weight of an animal varies according to the breed, type, class, individual, age, and condition. In most

¹ In measuring height the horse should stand on a level surface and the measure made to the highest point of the withers. The legs should be perpendicular to the floor and parallel with each other. The measuring apparatus should also be held perpendicular to the floor and the cross bar should be level. The shoes should be taken into consideration. The actual height can be determined only by measuring the horse without shoes or by deducting the height of the shoes.

classes of stock weight is of primary consideration. This is especially true in draft horses, beef cattle, swine, and sheep. Abnormal weight above the required standard is a discriminative quality. In judging, the weight should be estimated or its value fixed according to the factors mentioned above. One of the principal examples of a breed where height and weight do not qualify the animal for service is in the Shetland pony. The height to which this breed



FIG. 5.—Method of measuring height of horse. (Courtesy of Prof. C. S. Plumb, Columbus, Ohio.)

attains is limited to forty-six inches in animals which qualify for registry in the recognized record book. Other similar cases might be cited, but it is not considered necessary to give them special consideration.

Scale.—The scale of an animal is fixed by the height and weight attained. The term is synonymous with size but is often used in designating the combined quality of height and weight.

Substance.—The term substance refers to structure. Gay defines it as being manifested by the scale of the animal in general and the amount of any one particular tissue such as bone. Quality and substance are not correlated but more or less of each is essential, depending upon the type of the animal.

Quality.—Quality in an animal is not a material attribute. The best method to use in impressing the significance of quality upon the mind is to study two animals carefully which have diverging qualifications in this respect. Where quality is clearly evident it is not only an indication of what will be found on minute examination of the exterior, but it represents also the character of the bone, tissue and flesh, for example, of meat-producing animals. From the breeder's standpoint evidences of quality are seen in a fine, clean, mellow skin which is pliable and elastic to the touch. Animals possessing quality usually have a fine clean bone, a fine-textured flesh, and a minimum of waste on the block if produced for this purpose. In other than meat- and wool-producing animals quality is manifested in the clean-cut, smooth, firm conformation. Evidence of the blood circulation is also usually clearly apparent in such animals.

In judging quality the mistake should not be made of placing an undue value on a thin, papery skin, as such a condition does not represent quality. A thick, harsh, inelastic skin is likewise undersirable because it is usually accompanied with large, coarse bones, rough, prominent joints, and coarse-textured flesh. A further characterization of quality is indicated in the head, shoulders, and tail setting. The head should be clear in outline, clean and free from any abnormal condition such as roughness, coarse hair, undefined features or facial outlines. The muzzle should be large yet indicative of quality. The shoulders should be compact, smooth and evenly covered, except in the dairy breeds, which should have light shoulders and sharp withers. In cattle, swine, and sheep inferior quality is also indicated by a rough, open condition over the top of the shoulders. In the horse it is manifested by a coarse, unsymmetrical blending of the neck, shoulders, and withers. Taken as a whole, the animal

possessing quality shows extreme individuality, clear-cut outlines, fine-textured skin, hair and bone, and a general harmonious blending and symmetry of all parts.

Individuality.—Individuality is a quality or state peculiar or distinctive to an individual. In live stock judging it is used in a narrower sense than character, which is a supreme breed mark in the best pure-bred animals. Character is thus used in signifying the degree of conformity to the breed which it represents. Individuality conveys the idea of clear-cut contour which distinguishes an animal, not only from other types but from other animals of the same general type. The critical live stock judge will quickly select the animal in a class possessing the greatest individuality because of its distinctive or clear-cut lines. This may be done regardless of whether an animal represents any particular breed.

A clear understanding of individuality in its minutest sense is really the basis of accurate live stock judging. A student who can master and balance the characteristic differences among individuals promptly will usually make a successful live stock critic. It is these minor variations in detecting individuality which bring out the contrast between the average and the keen judge who never allows a single point in an animal to pass unnoticed. The most successful judges are those who have made such a study of animal form that they can determine the gross form and its value by merely observing a single part, such as the head or any other region of the body. It is individuality or distinctiveness in outline and features which enables them to do so.

Constitution.—The term constitution is significant of ruggedness, vitality or robustness of form, duration or persistency in performance, and longevity. In breeding animals constitution ranks as an especially important attribute, as the use of strong, vigorous animals is necessary to fix this and other desirable characteristics in the offspring. If the constitution of the breeding animal is weak the same condition will likely be transmitted to future generations. It is not so important to emphasize this point in market animals because of their shorter period of usefulness. It

should be given consideration only to the extent which it is indicative of immediate health and vigor.

A capable judge will recognize the characteristics indicating constitution even without making a special examination of the animal. A full, broad head, a large muzzle and open nostrils, a full, deep chest and barrel which indicate capacity, aptly characterize an animal with strong constitutional development. The reverse characteristics, such as a long, narrow head, a pointed muzzle and small nostrils, a narrow, shallow chest, and a long, loosely coupled body indicate a decided weakness. Such animals should never be used in a breeding herd as they will neither breed nor develop into satisfactory breeding or market individuals. Animals of this type are usually the result of indiscriminate breeding, although occasionally they appear in well-bred herds. This may be the result of faulty management in early life. However, it is more often the result of some constitutional fault or defect in the ancestral animals. The best results can never be obtained from a breeding or market animal which is lacking in the factors which help to maintain the vital functions. Many animals, however, are so maintained and bred, generation after generation, only to add to the number of weak, impotent individuals.

Constitution in the breeding animal is analogous to endurance in the speed animal. Without it neither can perform their functions satisfactorily. While it is an attribute of importance in block animals, it is of unusual importance in breeding, work, or speed animals. It does not matter to what extent an animal is endowed with other special functions, unless it has the constitution to balance the other necessary attributes of milk, beef or speed, there cannot be a maximum amount of energy developed or work performed. Constitution is of first and last importance in a breeding animal, not only to perfect maturity of its own body but that of the growing fetus and those of future development. A dairy cow may possess a maximum amount of quality, the highest developed nervous temperament, but unless she is endowed with the vitality to continue the milk-producing function, such an animal is extremely faulty, both

as a milk-producer and a reproducer of her own inherited attainments. The animal of low vitality or, as otherwise expressed, weak constitution, usually shows evidence of the condition in the eyes, the development of the chest, the size of the muzzle and nostrils, and other indications of general capacity. When strongly endowed with constitutional characteristics it bespeaks persistency of performance and continuity of strongly inherited offspring.

Capacity.—Capacity is bred and developed in an animal the same as any other quality or characteristic. Naturally, animals should be selected which have an inherent tendency toward such development. Animals which have small capacity are usually the result of using inferior breeding stock, although they may occasionally be the offspring of exceptionally strong and vigorous breeding animals. Capacity is indicative either of breeding or feeding qualities. Like constitution, this factor is of greater importance in the breeding animal because of the influence which it exerts throughout the entire period of usefulness and on future generations. A short, shallow-bodied animal makes an inferior breeder because of its inability to properly nourish and develop a strong, vigorous fetus. The cramped condition of the animal is not only indicative of improper self-maintenance, but it naturally checks the development which the reproductive system should convey to the unborn animal.

In a measure, capacity may be either natural or acquired; for example, it can be developed by liberal feeding or retarded by withholding proper maintenance rations. The young animal may be grown into a shallow-bodied, flat-ribbed individual by withholding the roughage part of the ration, either wholly or in part, or capacity may be materially increased or developed by feeding liberally on rich, nutritious feeds. A clear line of demarcation should be drawn between the breeding animal and the one intended for feeding purposes in estimating the necessity of capacity requirements. In either case it is important, yet on the whole the animal which has a long period of usefulness should have capacity unusually marked in its development.

Symmetry.—The symmetry of an animal is dependent on the blending of the individual parts, such as the head, neck, shoulders, body, and quarters. In an unsymmetrical animal each of the parts above named and the minor structural details stand out independent of each other. The head, for example, may be large and coarse at the junction with the neck. The shoulders may be abrupt instead of blending



FIG. 6.—French Coach stallion, showing symmetry of form.

smoothly into the body proper. The coupling may be long and, therefore, make the animal appear long and out of proportion with the other parts. The coupling should not only be short to give strength but to add style, beauty, and symmetry of form. Symmetry involves a construction indicating that the parts are made one for the other, instead of having an independent formation. Symmetry of the whole involves a complete harmonious blending of all the parts, thus indicating a unified structure.

Temperament.—Temperament signifies the degree and character of development of the nervous system. It is especially significant in judging certain types, such as the horse, beef, and dairy animal. Each type of live stock has peculiar temperamental characteristics significant of their adaptability to various specialized purposes. The value of the horse for pleasure or work is measured in a large degree by the temperament possessed. Draft animals are characterized by lymphatic temperament or nerve force, while speed



FIG. 7.—Jersey bull, showing nervous temperament.

horses are characterized in an extreme manner in the highly developed nervous temperament possessed.

The temperament of the dairy cow is likewise of a nervous character. Heavy milk production is largely dependent on the lean, spare framework indicative of a highly developed nervous system. The degree of perfection reached in dairy breeds is closely associated with the degree of development of the nervous organization. Such a condition indicates that the animal is turning all of the food materials, over and above maintenance, into milk production. The beef animal, having a close, compact, smooth form is characterized by

a lymphatic temperament which is just the reverse of that possessed by dairy breeds and certain types and breeds of light horses.

Temperament is controlled largely by the development of the nervous system. The breeding of the animal enters into consideration in analyzing this characteristic. A running horse, for example, with a lymphatic temperament would be practically useless on the track and, likewise, one with a highly developed nervous organization would be of little value as a pleasure animal. Generally speaking, the animal which accumulates the energy from the food material on its own body has a comparatively low state of nerve force or development, while one which eliminates the products of energy through milk or high-speed development is characterized by a highly developed nervous organization.

Condition.—Condition is a broad term which is used to designate the amount of fat which an animal carries at any particular stage in life. While fat accumulation is not necessarily a requisite of breeding animals, the acquisition of fat is often employed to bring out the ultimate or final effect in an animal. In discussing condition, the two terms, natural flesh and fat, should be clearly differentiated. Natural flesh, to a specified degree, is a requisite of all animals, speaking from a broad viewpoint. The term is more particularly used in discussing the flesh merits of cattle. However, it may be very properly applied in a broad way to all animals. Natural flesh or muscle is acquired during the growing stage. Fat may be acquired to a limited extent during the same period. However, it is a natural phenomenon of the matured animal. The two terms, fat and flesh, are often used interchangeably. However, a clear line of demarcation should be drawn.

Market Condition.—Market condition is significant of the accumulation of fat in placing market or show animals in the best possible condition to sell or show advantageously. While such animals are often fattened to an extreme degree, this is not necessarily significant of overfattening or pampered condition. Market animals are put in high condition to improve the quality of the finished product. Show animals

are so handled, not because of added value for breeding purposes, but rather to show what the ultimate result would be in the offspring from such animals if finished for the block.

Breeding Condition.—Breeding animals should be maintained in medium condition for obtaining the best results. This is especially true if such animals are to be handled by amateur feeders. The experienced feeder can take an animal which has been placed in high condition and remove the excess fat in such a way that the animal may not be



FIG. 8.—Shorthorn cow, showing high or pampered condition and lymphatic temperament.

materially injured. While there is a sentiment against placing breeding animals in high condition for show purposes, it is not possible to bring out the ultimate results which may be obtained unless breeders use this method of preparation. There is merit in such a practice if not overdone.

Pampered Condition.—The average breeder should not undertake to breed from animals which have been highly or excessively fitted for market or show purposes. Such a pampered condition is, without doubt, detrimental to the breeding capacity of any individual. The period of usefulness

is usually not only shortened but in many instances the quality of the offspring is not what it would be under ordinary conditions. The varied experience of the constructive breeder in watching the process of development and fattening enables him to determine the probable underlying structure with considerable accuracy. A breeder who possesses this experience can often select a highly fitted animal with profit because he recognizes value which the average person would fail to detect. While this plan of selection may be followed by breeders of this stamp, it is not generally recommended for the average stockman.

QUALIFICATIONS OF BREEDING ANIMALS.

There are certain distinctive qualifications required of breeding animals which render them most useful from the viewpoint of the breeder and the showman.

Breed Character.—Breeding animals, strictly speaking, are those of pure lineage with the blood lines sufficiently concentrated so that certain distinctive breed features are reproduced in every detail. Pure-bred animals are characterized by certain features or breed markings which typify or distinguish them from all other breeds and which are under the proper conditions uniformly transmitted to the offspring. As these breed features or markings should represent utility qualifications, breed type becomes an important factor in judging pure-bred animals. The term, breed character, should be taken to signify the characters or features which typify standard representatives of the breed. From an economic standpoint those breed characters or features which qualify from the practical standpoint are the ones which should be instrumental in defining the purpose of a breed. Unfortunately, such a condition has not always existed, and because of this some breeds qualify in a measure because of those characteristics or markings which are not essentially of value.

Breed character is a supreme mark which dominates all animals deserving of the highest rank among breeders. While breed character is of vital importance in judging

pure-bred breeding classes, other characteristics or conditions of significance should not be disregarded. Judgment in breeding classes is passed relative to the conformity of animals to certain arbitrary standards which have been fixed. There should be a clear-cut conformity to these breed characteristics, otherwise a break in type may become necessary. Breed character bespeaks a lineage of carefully bred animals which a prospective purchaser cannot conscientiously disregard in selecting breeding stock. There is a special significance in animals of high-bred character which it is necessary

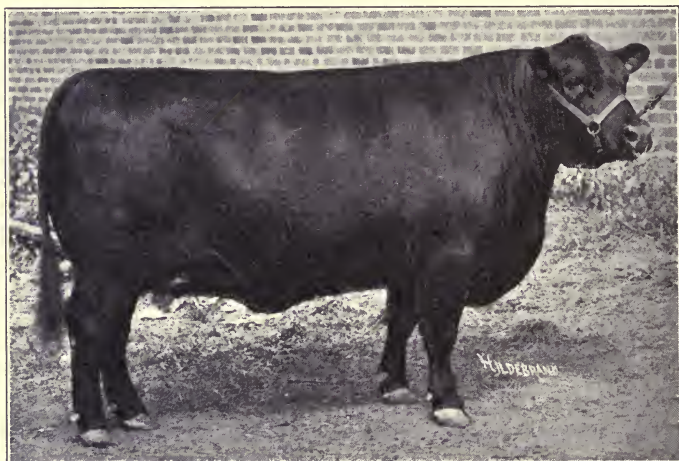


FIG. 9.—Breed character in an Aberdeen-Angus cow.

to recognize in the breeding herd and in the show ring. Every breeding animal should portray vividly, even to the finest points of discrimination, the features which characterize or typify each animal within the breed and each breed among breeds.

Herd Uniformity.—There is no problem more difficult to solve or direct than that of breeding a herd of live stock of uniform type and quality. While the eliminating process can be used to good advantage in discarding the inferior specimens from the herd, there still remains the important

problem of unifying the various breed characteristics of the animals retained. Variation is the real source of breed improvement, yet variations occur, not only for good qualities, but for undesirable ones as well. This makes the establishment of uniform characteristics doubly difficult. If breeders practice culling their herds closely, the inferior qualities may thus be largely removed and along with them the characteristics which tend to make the herd variable in transmission. There will always remain, however, a certain natural variation even among the better developed specimens in the herd.

The original practice of breeding and maintaining several distinct types of animals in a herd kept it in an admixed condition. Fortunately, however, this practice is being rapidly replaced by more favorable conditions. The practice of maintaining an animal because of its excellence, disregarding its conformity to a definite type, is rapidly giving way, by the better class of breeders, to a system which will allow greater uniformity. The best herds have all been built up by this one-type method of improvement and it is merely a question of practising it rigidly for breeders to reach ultimate success in breed or herd uniformity. These conditions should all be noted in a herd from which a purchaser anticipates selecting animals for a foundation.

Adaptation.—Breeds of live stock should be selected with special reference to their adaptation to the section in which the herd is to be established. In most of the standard breeds of live stock there is quite a wide latitude of adaptation, yet there are specialized conditions under which unusual results may be obtained. The Jersey breed of cattle is well adapted to close pasture confinement, having been reared under such conditions in their native home. The Holstein-Friesian breed, which is considerably larger than the Jersey, thrives best where it has access to good pasture lands. In Holland where this breed originated the farms are level, and it is on such land that this breed reaches its highest state of development, although like the Jersey, the breed will thrive under varying conditions. The Ayrshire breed originated in northwestern Scotland where the land is rough,

hilly, and the pastures are scant and not of the best quality. Because of these rather unfavorable conditions the Ayrshire has developed into a breed which is especially noted for its adaptation to rough, sparse pasturage conditions. In selecting a breed of dairy cattle for a rough, hilly country where pasture lands are not of the best quality, the Ayrshire is credited as being an excellent breed to suit these conditions.

The Hereford has developed into an excellent breed for western range conditions, largely because of its adaptability to range country conditions. The Shorthorn, although an excellent breed, is more favorably adapted to sections where pasture lands are naturally abundant. Usually this breed has found its home under these conditions notably in Kentucky, Virginia, Ohio, Illinois, Iowa, and Indiana. Although rightly considered the cosmopolitan breed of beef cattle, because of their wide distribution, it is better naturally adapted to conditions like those mentioned.

Confining the discussion to certain types of animals, it is a fixed principle that small breeds of animals, for example, are more thrifty under sparse or average pasturage conditions than otherwise. The large breeds of sheep may be maintained under rather artificial conditions and attain a certain degree of success. However, they are very much better adapted to sections where they have access to rich, natural pasture lands. The same principle may be applied to all breeds of live stock, and in so doing it will be found upon close study and observation that these breeds have become disseminated largely according to this principle.

Breeding Test.—If circumstances will permit, it is preferable to select breeding animals which have been rigidly tried out in the herd. This is impossible, however, with young stock which has not reached breeding age. The only guarantee of breeding qualities which the purchaser usually gets with an individual is the fact that the ancestors were successful breeders according to the records. This is not an absolute guarantee, however, that the progeny will breed as satisfactorily as the parents. The purchaser is reasonably safe in selecting breeding animals if he takes special precautions to select the descendants of animals having a long

line of successful breeding ancestry. If these records are reinforced with a strong, vigorous sire and dam, it is reasonable to believe that the individual selected will prove the equal of its ancestors. If extremely young stock is selected special stress should be placed on this point, largely because of immaturity. In applying the breeding test the greatest care should be exercised in mating the untried individuals to those which have thoroughly proved their worth in the breeding herd.

Productiveness.—Productiveness is a measure of breeding value as applied to prepotency in the male and prolificacy in the female. Prepotency refers to strength and surety of transmission of the qualities inherent in the sire, while prolificacy refers to the number of animals in the progeny and the continuity of transmission, especially in swine and sheep. The term regularity may be more logically used in connection with horses and cattle. These qualities are important in building up a herd or flock and should be given the most careful consideration. Breeding animals which are selected without having obtained a knowledge of their breeding record from this standpoint may not always prove their worth. However, if for several generations the breeding record shows a high measure of productiveness, it is only natural to assume that the same characteristics will be concentrated in the immediate progeny.

Natural Thrift.—Natural thrift is an inherent quality of the individual herd or breed. Naturally it is of greatest importance in the breed. Individual animals in certain instances often surpass other members of the herd or breed in size, quality, form, and thrift. Such animals, providing their unusual growth and development does not indicate an abnormal or undesirable condition are in strong demand. This is a natural consequence, since such animals are productive of exceptional profits, both from the breeding and market standpoint. The blood lines of the runt pig are the same as the larger and more vigorous litter mates. This is a condition illustrating the variation which may exist in different individuals.

The pedigree may place the stamp of approval on an animal or on a herd, yet if the individuals are not potent or

naturally thrifty blood lines are essentially of no value. Whether this condition is termed individuality or natural thrift, it is of extreme importance in selecting any animal. The close, compact horse with the smooth, symmetrical, round-turned body is naturally an easy keeper. Such an animal carries its own stamp of individuality or natural thrift. While the breeder should naturally be interested in the pedigree, the individual, herd or breed attainments should not be disregarded.

Age Limitations.—Age qualifications are important, especially with breeding animals which are to be retained for a considerable time in the herd. Many breeders make the mistake of selling their best animals because they have supposedly passed their real period of usefulness. A breeding animal is valuable as long as it continues to produce meritorious animals, no matter what the age attained. Masterpiece, for example, one of the great boars of the Berkshire breed, was used actively until nine years of age. After the breeding value of an animal is clearly established it is unwise to discard it from the herd merely because of advancing age.

It is always preferable to purchase an animal in its prime as soon after its breeding qualities have been tested as possible. If the animal proves to be a valuable breeder the purchaser has the opportunity of getting the full benefit of the offspring possessing the blood lines of the individual. This is extremely important, as a few good animals from one extraordinary breeder are far more valuable than a much larger number from one or more inferior individuals. Experience has taught that a promising animal should never be sacrificed without having given it a reasonable trial in the breeding herd. Some excellent examples may be cited where dairy cows have not only themselves been placed in the advanced registry when seventeen or eighteen years of age, but they also have progeny which won distinction either as breeders or because of their ease of meeting advanced registry qualifications. These facts strongly indicate that a breeding animal should not be sacrificed as long as the previous valuable records are being duplicated, regardless of the age of the animal.

Pedigree and Individuality.—Pedigree and individuality should always receive first consideration in selecting pure-bred live stock. Animals intended for meat, milk or work alone are judged entirely according to their individuality. The lineage of the pure-bred animal is very important, yet individuality should not be disregarded. A purchaser can make no greater mistake than to select a pure-bred animal on pedigree alone, as the pure breeds of live stock contain some very inferior individuals. If the ancestors of an animal have all been successful breeders, and the individual corresponds closely to the information contained in the pedigree, such an animal will usually prove to be a successful breeder. The individual is often considered favorably without placing proper emphasis on the pedigree. This is a mistake even more serious than the former. Individuals may be very impressive on conformation alone, yet uniform characteristics may not always be transmitted.

Breeding animals are often selected on individuality alone. Others are selected on pedigree alone. These two factors, pedigree and individuality, should be evenly balanced to get the most valuable breeding animal. If the pedigree meets with approval and the individual is lacking in some essential characteristics, such as constitution, vitality, or quality, the chances are that the offspring will be so characterized. This emphasizes the point that a pure-bred animal may, because of unfavorable conditions, develop into a very inferior individual, which will in turn transmit undesirable characteristics to the progeny. A well-constituted individual may have every indication of possessing prepotent breeding qualities, yet some weakness occurring in its ancestors renders it unable to transmit the desirable individual qualities.

The only safe method to pursue in selecting breeding animals is to pay strict attention to both of these factors. Constructive breeders have been very ardent in correlating these factors and the animals which they have succeeded in producing are evidence of the wisdom of such a practice. Amos Cruikshank, in developing the Scotch type of Short-horn, did place special emphasis on the individual because

he was looking for a low-set type of animal with ample chest capacity and a deep, thick body. His idea in selecting a healthy, robust animal was to get one which would stand the rigorous winters of northern Scotland. It was necessary to select a rugged animal for this purpose and consequently, from his standpoint, individuality was placed ahead of pedigree, although only for the reasons stated. Good judgment ordinarily directs emphasis on both these factors.

Maturity.—Maturity, properly speaking, signifies the period at which an animal reaches full development in bone and muscle. From the market standpoint a mature animal may not have reached or attained full growth or development. Markets make certain demands for animals of a specified weight and condition; therefore the term maturity is often applied to animals in proper condition to meet the demands of these markets. Maturity, as applied to the breeding animal, signifies full growth and development in every respect in height, weight, form, constitution, and utility. A horse is considered fully mature at four years of age, a bull or cow at three, and swine, sheep, and goats at two.¹ Many animals, however, reach this age without having attained normal maturity or development.

This problem is of vital concern in selecting breeding animals. Any animal which is purchased for breeding purposes should have attained its proper degree of maturity, considering age, at time of purchase. Development which is lost through improper care, feeding, or management devitalizes a breeding animal to a degree equal to the deficiency in maturity. The animal used for reproductive purposes should have attained full development, although the progeny is to be placed on the open market before normal maturity is reached. This will insure maximum growth and development up to the time the animal is placed on the market. Breeding animals which are small, weak, and immature in stature, produce unprofitable market animals, because market maturity is attained at a maximum cost on such animals, due to the failure of the ancestors to transmit this normally rapid early development.

¹ Show yard classification. Mature milking form in dairy cattle is specified as five years.

SUGGESTIONS ON SELECTION.

In the selection of animals, especially for breeding purposes, there are special points of significance on which more than the usual stress should be placed. More attention should be given to the breeder and his methods, the adaptability of his animals, the uniformity of the breeding qualities, and the particular lines followed in developing the herd. These are points specifically differentiated from the methods and practices used in judging or depicting the best individuals.

Breeder.—In selecting breeding animals it is a judicious practice to purchase from a breeder who has a substantial reputation for producing high-class animals and selling them for what they are represented to be in the pedigree. The pedigree of an animal is no more reliable than the breeder who furnishes it. Breeders who have made the greatest success in their work are those who have bred unswervingly toward a specific ideal and kept permanent breeding records, showing not only the lines of ancestry, but also the value of all individuals in the herd or flock. This permits close culling and the maintenance of a high standard in the herd.

Breeders may be divided into two classes, the true constructive breeder and the dealer or vendor whose operations are largely limited to a multiplication of individuals. The former type should be patronized, as their animals and first-hand statements concerning them are more dependable than from breeders of the other sort. This is an important consideration in determining where the initial start in the pure-bred or even-grade herd will be obtained. The best bred animals originated with breeders of the constructive type. While few live stock breeders have attained the position deserving of this distinction, they should be patronized, whenever accessible, as the vendor of live stock is ordinarily not a constructive breeder. The purchaser should therefore take every precaution in determining the character and reliability of the breeder and the desirability of the animals which are selected from the herd.

Pedigrees should be carefully considered, as every breeding

animal should have not only individuality but a pedigree showing them to trace at least for four or five generations to strong and unmistakable parentage. The individuals in the pedigree should possess qualities such as size, constitution, prepotency, and prolificacy. These are the things which make a breeding animal valuable. If the records have been properly kept all of this information can be obtained. The latter type of breeder mentioned, however, does not maintain such records, and for this reason the better qualified breeder should be sought.

Lineage of Animals.—Lineage is analogous to the pedigree of an animal. Reference is made here, however, to the



FIG. 10.—Select breeding sheep as well as all other kinds of live stock under field conditions where the sire, dam, and offspring may be examined. (Photograph by author.)

immediate ancestry on which the prospective purchaser may make a critical examination to determine their probable desirable or undesirable transmitting qualities. This examination is seldom carried out in practice beyond the sire and dam because the grandsires, grandams, and other ancestors further removed, have usually either died, gone into other herds, or passed their period of active usefulness and have therefore been eliminated from the herd. A large amount of valuable information may be obtained from the immediate sire and dam. Their type can be studied closely, their disposition, quality, constitution, and all other external

factors which constitute the desirable breeding animal. Aside from their external characteristics their productiveness, uniformity of breeding, and the persistence with which these qualities are maintained may be studied.

One of the best examples of this is in the dairy cow where it is not only a question of studying the animal and her ancestors from the standpoint of type, but also the yearly milk and butter records of the individual, her ancestry, and even her progeny. This serves as a useful guide in selecting the progeny from animals in established herds. It is of special value to the prospective purchaser to study the type of the animal along with the ancestral, breeding and producing records. This serves as a double guarantee of the usefulness of the younger, untried breeding animals selected. In beef breeds, it is impossible to have access to the present records of the animal because productiveness and profit from beef animals are measured by the value of the animals resulting at maturity. The immediate ancestral individualities and their performance records may be studied, however, in a similar manner to the other considerations mentioned.

Healthfulness.—In passing judgment on stock in the show ring or elsewhere, it is not always possible to determine the condition of the animal from the standpoint of general healthfulness. Unless there are unmistakable indications of unhealthfulness or lack of vigor, the judge or purchaser does not give such matters consideration, his work covering the rating of the animals according to their present intrinsic value. In selecting live stock for breeding or feeding purposes, this is a matter of vital consideration and more especially of animals selected for the former purpose.

Breeding animals which are expected to reproduce for a period of years should be naturally healthy and vigorous. This has become of even greater importance, since animals are housed under more artificial conditions than formerly, and are therefore more likely to contract contagious or infectious diseases.

In selecting stock for breeding purposes, the condition of the individuals may be used as a guide in most cases, although

there are some diseases, especially tuberculosis, which cannot usually be detected by a casual examination. Some of the worst affected tuberculosis specimens are those which have on gross examination shown the least indications of the trouble. This is one of the few diseases which may seriously affect the vital organs or inner structure of the animal without first making an exterior impression. Even in an advanced stage there may not be sufficient evidence to detect it. The purchaser should have the tuberculin test applied by a competent veterinarian who can thus determine whether the disease is in the system. Other diseases should be detected before the purchase is made and thereby save time and multiplication of troubles in the herd.

Breed Selection.—In selecting a breed of stock the purchaser should have a definite idea of the kind of live stock farming which it is desired to follow. Breeds have been developed along specialized lines for performing definite kinds of work. Practically all of them may be grouped into certain standard types. The prominent breeds of the draft type of horse, for example, include the Percheron, Belgian, Clydesdale, and Shire. These breeds have all been developed especially for draft purposes. However, not all of them are equally well adapted to the varying conditions of work, soil, feed, and climate. Here is where breed selection should receive important consideration. Certain individuals of any of these breeds may perform their work very satisfactorily under all conditions. Breeds as a whole, however, will be more successful when they are used under the conditions in which they were originally bred and developed.

The question is often asked concerning the best breed to select. The answer depends entirely on the particular conditions of soil, feed and climate existing in the section as well as the local conditions on the farm. There is no rigid rule which can be followed in selecting a breed of live stock for a specific purpose.

In making a selection, individual likes and dislikes should be considered and should be properly balanced with the other important points. After the type of the animal and the breed from this type is fully decided upon the

man becomes an important factor. Not as much depends on the breed after these factors have been determined as the kind of care and management which will be given the individual or herd.

Established Herds.—Animals purchased from old established herds usually have a higher intrinsic value than individuals of apparently equal qualifications from a herd of shorter duration. It is better to select animals from a herd which has made a permanent reputation rather than from one which has only attained a few years of superficial success. If more animals were so purchased from breeders who maintain a single-type standard the various breeds of live stock would advance more rapidly than at present. While it would not be possible for the few old-established breeders of live stock to supply the numerous calls, an effort to patronize them would of necessity place the live stock breeding industry on a higher plane.

The veteran breeder of pure-bred animals should receive greater commendation, as breeders of this stamp are usually sufficiently far-sighted to see that an extraordinary animal is never placed in the hands of an inexperienced breeder. One herd so started which proves to be a failure is very detrimental to the best interests of the breed. One unsuccessful herd is responsible for keeping a great many otherwise successful men out of the business.

The average man can breed any number of inferior animals which his financial condition will justify, but to produce successful herd headers is a problem which only the best breeders have been able to accomplish. When buying from one of these old-established herds, regardless of whether it is intact, there is reasonable assurance that the purchaser is getting good individuals with strong, pure-bred lineage, individuality, and quality.

Herd Records.—The dairy cow is the principal animal where the real productiveness can be actually measured. It is unfortunate from the standpoint of practical herd improvement that the capacity of all farm animals cannot be measured or determined in this way. Endurance or speed records and block tests are the only other real determinations

which can be made on an animal. Dairy records are of value, depending on the length of time the tests are conducted. Weekly or even monthly tests should not be used in estimating or determining the value of an animal. The variation in the lactation period of dairy cattle is so great that only tests conducted for yearly periods or longer should be given absolute credence. Such a test furnishes the average production from the high to the low point in lactation and, consequently, the average ability in productiveness. A



FIG. 11.—Ayrshire cow with a record of 13,789 pounds of milk and 564.39 pounds of butter fat in one year. Not an exceptionally high record but a good standard of production.

record taken from a dairy animal in the early stages of lactation represents an abnormal or unnatural condition. Any one purchasing an animal with a record so determined is usually disappointed in the ultimate results. Oftentimes animals with large early lactation records are non-continuous producers and therefore unprofitable to the stockmen or dairymen. A record based on a low productive period may likewise show apparent inferiority when an average record for a year would show such an animal to be an acceptable producer. These tests should be made at a normal period of



FIG. 12.—Speed trials measure the actual value of an animal.

life for a sufficient length of time and by accurate methods. When made in this way their value can hardly be over-estimated to the stockman.

Animals descending from sires and dams with accredited records have the predisposition to high production. However, in some cases they may fail to respond satisfactorily to the test. This is usually not true, yet the test should be continued to ascertain doubtful specimens. Young animals should be given reasonable latitude for increased production when mature form is reached. In the authenticated tests supervised by the breed associations a scale or standard for animals of various ages is maintained. Due allowance should be made for the undeveloped form of the animal.

Endurance or Speed Records.—The American Standardbred horse and the Thoroughbred (*running*) horse are the only examples, other than the dairy-cow test and the block test, where the actual measure of value of the individual can be determined. A speed record is the primary measure of a Standardbred animal. The Standardbred Trotting Association maintains two distinct standards for measuring the value of the trotter and the pacer. Certain provisions are made therein whereby an animal may enter the record under different requirements. While there is greater latitude in the method of standardization than that used by dairy record associations, the results all lead to the same end; a known fixed efficiency for performing work.

Although tried animals always command greater values, the money so expended is for a good purpose, not only to the individual and the herd but to the breed as well. The high speed records acquired by the Standardbred animal are the result of breeding and training to a fixed standard. Successive lowering of records has been achieved by persistent methods of improvement. Selection of animals for speed purposes should, like the dairy animal, be based on health, form, capacity, and repetition of records under normal conditions.

Block Tests.—The ultimate value of a finished meat animal is obtained by the block test. The dressing percentage

can thereby be obtained, the relative proportions of bone, lean meat, fat and other tissues, and the quality of the

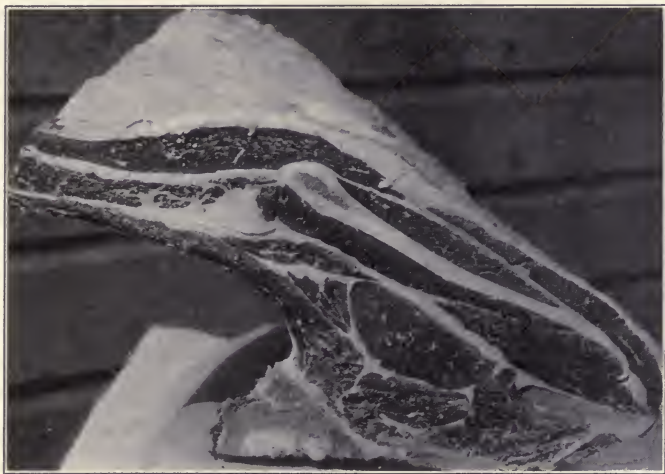


FIG. 13.—Prime or standing rib, front view. (Photograph by author.)

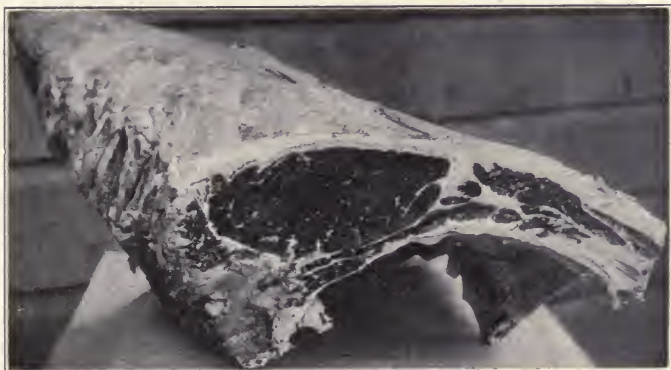


FIG. 14.—Prime or standing rib, rear view. (Photograph by author.)

product. Unfortunately, a test of this kind is of indirect value to the breeder. If such determinations could be made

in the live animal they would be of greater practical value. Even under the conditions of the test, however, information of this character is of great value to stock breeders. It represents the ultimate attainment of animals and can therefore be applied indirectly in producing other animals of like qualifications.

Breeders' Fads.—All breeders of live stock have certain utility requirements which should be bred and retained, regardless of predominating fads and changing conditions. This should be done notwithstanding that some breeders demand useless or fancy points. Breeders of live stock

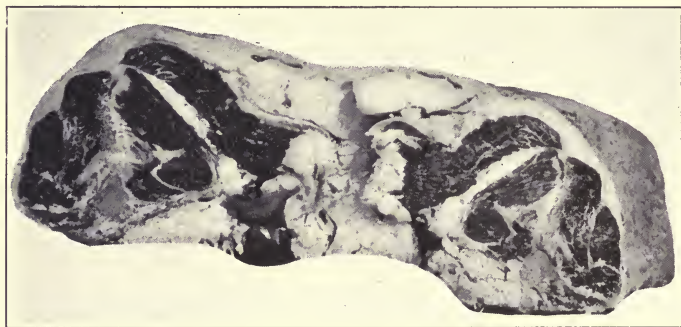


FIG. 15.—Loins, showing marbling and finish. The rib and loin cuts figure prominently in value in the block test. (Photograph by author.)

as a class are not responsible for the development of useless qualities. Absurd type standards have been maintained, however, in some breeds largely to the detriment or development of useful or utility points. The experienced live stock judge will usually rate these points on their merit. In a close decision, all other conditions being equal, the animal possessing the fancy points would receive first consideration. If there was a decided difference in favor of the utility points, the animal possessing the greatest merit from this viewpoint should be given a first rating.

In judging live stock, either for breeding or direct market purposes, the essential factors considered should be the adaptability of the animals to their ultimate use. Breeders'

fads and fancies, while of temporary value and beauty, usually lead to ultimate failure in breed development. The breeder who can retain the useful qualities in his herd and incorporate prevailing fancies may afford to do so. When something must be sacrificed, however, it should be the fads and fancies which serve no real useful purpose. Breeders who are classed as constructive in their methods are the men who have pursued the lines of utility. Their ideal of animal character and usefulness which would eventually be in demand was portrayed ten, twenty, and fifty years hence. Men of this character have made the useful breeds of live stock.

The breeder who has clamored to reach the topmost standard of popularity entirely disregarding breed usefulness has left nothing to his credit in breed history. One of the most convincing arguments against fads is the generally recognized popularity of certain breed colors. Why one animal, family or breed should be better because of a peculiar fascinating color scheme is usually unsatisfactorily answered. Certain colors or combinations of colors may be more pleasing to certain classes of breeders, yet any requirement or quality which does not add to the actual value of an animal as a breeder, on the block, or for work, is a destructive attribute or character. The true constructive policy which has been followed by those breeders aiming at continuous improvement will remain prominent in raising the standard of value in the breeds of live stock.

CHAPTER VI.

JUDGING HORSES.

FUNDAMENTAL CONSIDERATIONS.

Uses.—Before placing a value on a horse or giving it a rating in the show ring or otherwise it is necessary to have a definite knowledge of the particular character or kind of work to be performed. The horse, like the dairy animal, has a specialized function or work. In the former this is dependent largely on locomotion in one or more of its various phases. Whatever the character of work to be performed, whether for draft, for racing or for pleasure purposes, the degree of perfection of the organization, which, either in its parts or as a whole, is responsible for locomotion, measures the value of an animal.

Block animals may be temporarily or permanently impaired in structure and still possibly render an acceptable service to mankind in meat production. This is essentially true under certain conditions, considering the comparatively short period of usefulness of the block animals. While in the breeding classes of block animals locomotion is important, it is secondary to other considerations, and therefore of less importance than in the horse. If the structure of the horse is so injured through disease, accident, or from unsoundness, or the conformation is faulty, either in body or limb, it reacts directly and most forcibly on the value of that animal for any specialized purpose. Speaking from a broad viewpoint, a horse must work to be useful, and to work continuously and satisfactorily to the maximum capacity calls for a well-balanced individual in body, limb, and mental attainments.

A proper study of the horse necessitates a knowledge of the structure responsible for the activities in the organization

of the horse on which limited or maximum production of work depends. Manifestly, for a horse to do his greatest and most satisfactory service requires a perfect organization, which is known or determined only by a detailed study of type and conformation and their correlation in service.

Structure Analogous with that of Man.¹—The structure of the horse, so far as bones, joints and muscles are concerned is, with a few minor exceptions, very closely analogous to the structure of man, provided that man assumes the horizontal and quadrupedal position, and rests on the tips of his fingers and toes. The horse has no collar bone, the union between trunk and anterior extremities being wholly muscular, and the relative length of forelegs and hindlegs is such as to maintain the body in a perfectly horizontal, rather than an inclined, attitude. He has one digit instead of five and rests only on the last segment of it, so that the wrist corresponds to the horse's knee, the knuckle to his fetlock joint and the three phalanges of the finger to his first and second pastern and pedal bones. Likewise, the knee of the man is the stifle of the horse, the calf of his leg the gaskin of the horse, his heel the horse's hock, and so on as in the foreleg. As the man raises his weight well up on his toes and feels the tension of the muscles of the thigh and lower leg he can well understand what takes place when the horse "lifts" in the starting or moving of a load or in merely projecting his own body forward in locomotion.

Mechanical Structure.²—The structure of the horse, mechanically considered, consists of a trunk suspended by an arch, the vertebral column, supported at each end by four vertical columns, the legs, the anatomical features of which have already been described. Greater weight is borne on the forelegs because the appended head and neck bring the centre of gravity well forward of the centre of the body. The arrangement by which the body is slung between the two forelegs by the great pectoral muscles and the slope of shoulder and pastern provide for the supporting of this weight, especially during locomotion, with least concussion.

¹ Gay, Principles and Practice of Judging Live Stock.

² Ibid.

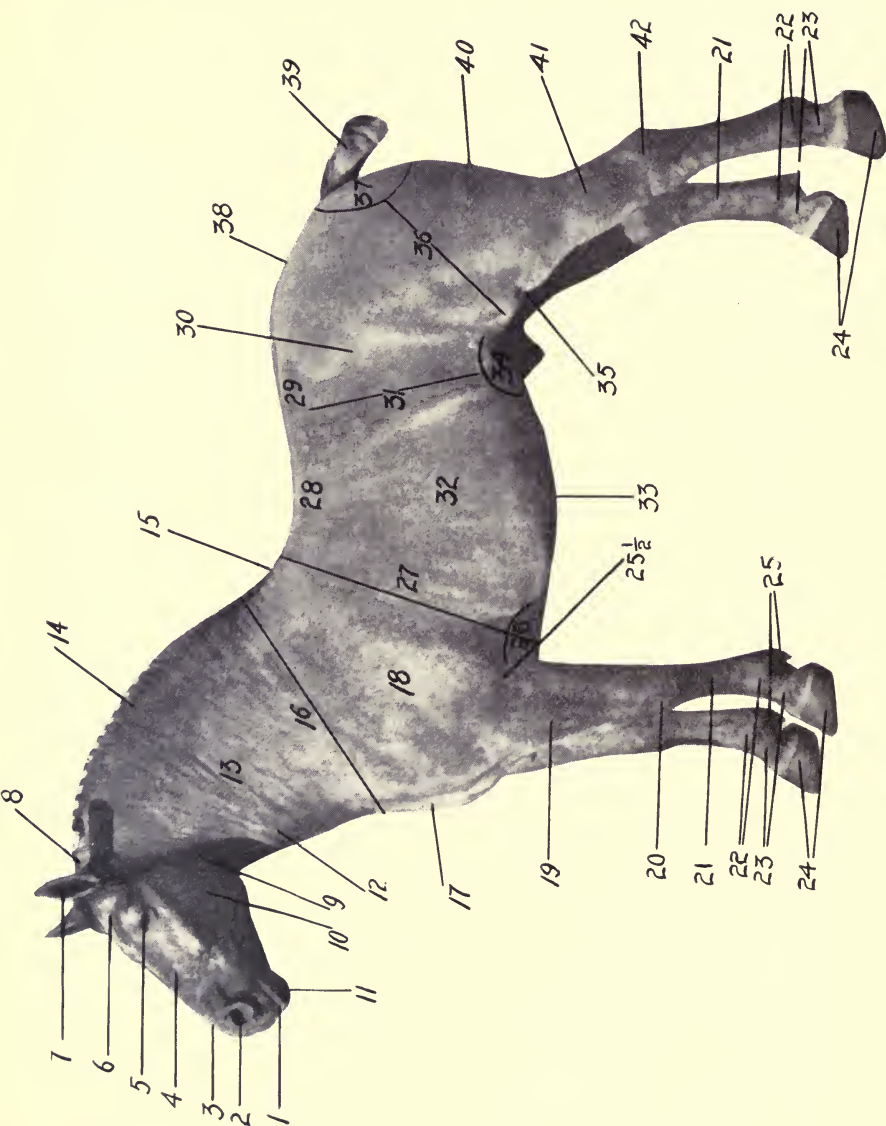


FIG. 16.—Location and names of the parts of the horse.

The centre of gravity being displaced further forward when the horse is in motion, still greater weight is thrown on the forelegs, the hindlegs serving as propellers. The articulation of the thigh directly with the pelvis conveys the propulsive effort throughout the entire length of the spinal column. The supportive action of the forelegs meets the propulsive action of the hindlegs in such a way as to restore the equilibrium of the body.

The joints of the leg are hinge joints, capable of motion in two directions only, flexion and extension, while the joints of the hip and shoulder, points at which the legs articulate with the body, are ball-and-socket joints, which permit of a rotary motion. The legs, generally speaking, are therefore capable of alternate flexion and extension, which takes place in the order named, although the flexion of the leg as a whole may involve the extension of some one joint, as in the case of the shoulder at the commencement of flexion of the leg.

Relation of Bone and Muscular Development.—In accordance with the use of the horse, it is necessary to understand the relation of the bones and muscles, especially in determining normal value, quality of structure, and the amount of natural muscular development. In passing judgment on a horse, the general shape of the bony framework and its correlation with the muscles should be kept in mind, as it will be helpful

EXPLANATION OF FIG. 16.

1—Mouth.	15—Withers.	29—Loin.
2—Nostrils.	16—Shoulder bed.	30—Hip bone.
3—Nose.	17—Breast.	31—Coupling.
4—Face.	18—Shoulder.	32—Ribs.
5—Eye.	19—Forearm.	33—Belly or underline.
6—Forehead.	20—Knees.	34—Hindflank.
7—Ears.	21—Canons.	35—Stifle.
8—Poll.	22—Fetlock joints.	36—Thigh.
9—Throat-latch.	23—Pasterns.	37—Buttocks.
10—Jaw.	24—Feet.	38—Croup.
11—Chin.	25—Feather.	39—Tail.
12—Windpipe.	25½—Elbow.	40—Quarters.
13—Neck.	26—Flank.	41—Gaskin or lower thigh.
14—Crest.	27—Heart girth.	42—Hocks.
	28—Back.	

in determining the relative merits of animals in low or medium condition. Although the character of the muscles, their length and thickness, vary considerably in different animals, the development of them is a safe guide in determining the ultimate value of an animal, either in draft or light horse service. Between these divisions there is a wide variation in the size, length, shape and thickness of the muscles, yet their relative position and the part which they play in giving an animal its characteristic shape and locomotion are the same. Draft animals have short, thick, muscles which indicate strength, while light animals have long and rather thin muscles, productive of speed. Aside from this difference the position of the muscles on the framework is the same, it being a question of a difference in form or development and not in location.

Beginning with the head, this portion of the body is largely formed by the peculiar construction of the bony framework in this region, the skin being drawn rather tightly over it. The neck of the animal is constructed almost entirely by the muscles leading from the head to the shoulders. The shoulders are partially formed by the bony framework. However, a large portion of the animal in this region is defined by the development of the muscular tissues. The body proper is formed largely by the position which the ribs assume. Although the contour is not determined by the rib development, the general shape of the body is largely thus defined. The rear quarters are shaped largely by the muscle formation, especially over the croup, the upper thighs, and in the quarters proper.

The muscular development of the lower thigh or gaskin is of such a nature that it is used as an index to the muscular development of the animal throughout. In an animal which has been highly fattened the natural muscular formation can be determined by this index, as this region does not accumulate fatty tissue to any appreciable extent. It is therefore a safe guide to the development in other parts because of the close correlation usually existing between this and other regions. The legs, from the knees and hocks down, are formed almost entirely by the bones, tendons and ligaments.

For this reason the canon bones are used as an index to the size and quality of bone which the animal possesses. A horse of good quality can be readily determined, for example, by passing the hand along the canon bone. If the skin is smooth, soft and oily, and the bone is hard, smooth, and dense it is an excellent indication of superior quality throughout. Other than in the head, body, and legs of the horse the skeleton is somewhat deceiving in the lines which a finished animal possesses because of the relatively large amount of muscle compared with the bone tissue.

Relation of Form to Utility.—The value of a horse is fundamentally based on the structure which governs or defines the type. The make or build of a horse is closely analogous or suggestive of the work which it can do. The draft horse with a long, broad, deep body, short, stout legs, all involved in securing weight and massiveness, is suggestive of power or work at a comparatively slow pace. The close-knit, symmetrical, smooth-turned, refined, heavy harness horse is suggestive of style and action at the expense of both the maximum work of the draft horse and the speed of the light harness horse. The latter, although of two distinct types, is generally suggestive of more speed and less style than in the heavy harness horse. Although the light harness horse is a comparatively smooth-turned, symmetrical animal, the deeper, narrower body, longer legs, and less pronounced scale are all indicative of speed qualifications. The saddle horse, with a short back, light forehead development, high withers and sloping shoulders, is suggestive of an animal with weight-carrying capacity. Likewise the pony, which is typified in the Shetland and Welsh breeds, is indicative of less draft and slower going, comparatively speaking, than in the other types mentioned.

The draft horse with weight and massiveness, in contradistinction to the light horse with a lithe, rangy form, is capable of developing power instead of show or speed in their various phases. A detailed study of the horse for these reasons is not only desirable from a general viewpoint, but necessary to understand the various applications in work and pleasure.

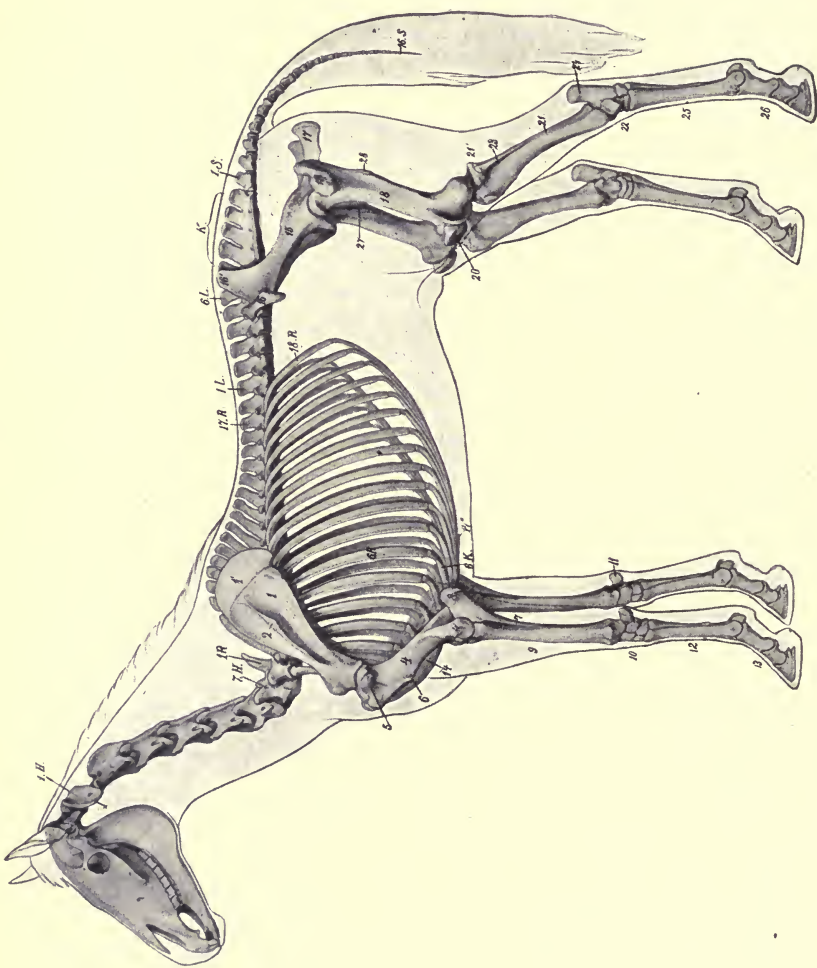


FIG. 17.—Skeleton of horse with outline of contour of body. (Courtesy of L. W. Sisson from *Anatomy of Domestic Animals*.)

Propelling Power.—The propelling power of the horse is in the hindquarters, the forelegs serving as a support or balance to the body. Evidence of the location of the propelling power may be seen in an animal doing actual work. Additional natural evidence is in the heavier muscling through the coupling, loin, croup and quarters, as compared with other regions. The energy is developed in the hindquarters, while the strain of the propulsion comes in a large measure on the coupling and loin muscles. A shallow flank is therefore indicative of a general body weakness. If the power developed cannot be borne by the correlated parts, additional or unusual development in any special region is not of any distinct value. That a chain is no stronger than its weakest link is evidenced in the horse when placed in severe work or endurance trials. The long, shallow body and loosely coupled animal cannot endure severe strain, while the short, compact and deep-muscled animal with a full, strong coupling can usually continue in service indefinitely. The degree of power development is dependent upon the formation of the bone and muscles, especially in the hindquarters. In the forehand the shoulder blade does not form a direct attachment with the mechanism proper, the horse having no collar bone. The shoulder bone is sustained by the muscles which give form or shape to the animal in this region. The difference in the mechanism of the forehand and hindquarters is thus indicative of the source of power and emphasizes the necessity of full development in the latter region.

EXPLANATION OF FIG. 17.

1.H., atlas; 7.H., seventh cervical vertebra; 1.R., first thoracic vertebra; 17.R., seventeenth thoracic vertebra; 1.L., first lumbar vertebra; 6.L., sixth lumbar vertebra; K, sacrum; 1.S., first coccygeal vertebra; 16. S., sixteenth coccygeal vertebra; 6.R., sixth rib; 6.K., costal cartilage; 18.R., last rib; 1, scapula; 1', cartilage of scapula; 2, spine of scapula; 4, humerus; 4', external epicondyle of humerus; 5, external tuberosity of humerus; 6, deltoid tuberosity; 7, shaft of ulna; 8, olecranon; 9, radius; 10, carpus; 11, accessory carpal bone; 12, metacarpus; 13, digit; 14, sternum; 14', xiphoid cartilage; 15, ilium; 16, 16', external and internal angles of ilium; 17, ischium; 18, femur (shaft); 19, trochanter major; 27, trochanter minor; 28, trochanter tertius; 20, patella; 21, tibia (shaft); 21', external condyle of tibia; 22, tarsus; 23, fibula; 24, tuber calcis; 25, metatarsus; 26, digit. (After Ellenberger-Baum, Anat. f. Künstler.)

Nervous Development.—The bones and muscles of an animal represent the foundation machinery by which work is performed when properly connected or correlated with the nervous organization. From the brain, which is the centre of the nervous system, there is a direct connection with all parts of the body which act in accordance with the degree of nerve stimulation. The stimulation which comes from the nervous system without proper coördination with the bones and muscles, or *vice versa*, would be of very little value. There is a direct relationship between the nerves and muscles which stimulate work, speed, or action in its various phases which is dependent upon the type of animal under consideration.

Animals with a sluggish temperament are simply lacking in nerve tone and consequently do not perform their work with the persistence or satisfaction of animals more highly developed in this respect. A horse with a nervous temperament usually has greater intelligence, greater nerve force, and, therefore, more persistence or endurance in performing work. An irritable, erratic animal is the result of imperfect nerve control. This condition should be differentiated sharply from the nervous-tempered animal which signifies a more highly developed nervous organization, susceptible of perfect control. These three conditions of nervous development or nerve force are exceedingly important in judging horses and mules and should be given special consideration.

Action.—Action in the horse, termed by Gay, “way of going,” is one of the chief fundamentals of the organized structure. The degree of development or perfection is directly dependent on the nature of the machine. This is influenced first, by the breeding, second, by the type, and third, by the individual. It may be otherwise affected by training or education and mechanical appliances. The latter two, however, are of chief interest to light horse breeders where show, speed or pleasure are involved. From a broad utility standpoint the breeding, type, and individuality of the animal are of fundamental importance. Education and mechanical appliances which influence action are of deep significance

in certain types and classes of horses. They involve the making or unmaking of some animals whose work is to show, to develop speed, or to be driven for pleasure.

Fundamentally, there are several distinct gaits of pronounced importance which are the walk, trot, pace, canter, rack, gallop, running walk, fox trot and slow pace. These gaits are described as follows and will be applied to the various breeds, types and classes in the consideration of these subjects.

Gaits.—A gait is significant of one of the characteristic methods used in producing locomotion. It is characterized by certain definite phases or features which thus gives the horse a distinctiveness in adapting itself to various uses, whether for draft, speed, road, show, or saddle purposes.

Walk.—The walk is one of the fundamental gaits of horses. It is a comparatively slow four-beat gait characteristic of the draft horse especially and also of light horses, although of less significance compared with the draft animal. It is a distinct form of locomotion and when executed properly is a very useful gait.

Trot.—The trot is a two-beat gait, the diagonal forelegs and hindlegs moving together. There are three distinct varieties of the trot, including that of the trotting horse, the heavy harness horse, and the saddle horse.

Pace.—The pace, like the trot, is a rapid two-beat gait distinguished from the latter in that the lateral foreleg and hindleg move together. It is characterized by more or less side motion and is adapted only for speed purposes or on very smooth roads which otherwise would seriously impede action or locomotion.

Canter.—The canter is a slow gallop which is accomplished under more or less restraint. It is a gait characteristic of the saddle horse. Such animals are frequently trained to lead on either foot to avoid the excessive wear on the leading forefoot and the diagonal hindfoot.

Rack.—The rack is a four-beat gait which is characteristic of the five-gaited saddle horse. It was formerly termed "single foot" because of its peculiar cadence. The latter term has been discarded, however, the term "rack" being used by the American Saddle Horse Association.



FIG. 18



FIG. 19



FIG. 20



FIG. 21



FIG. 22



FIG. 23

Gallop.—The gallop is a three-beat gait, two diagonal legs moving together, the one beat of the two falling between the successive beats of the other two legs.

Running Walk.—The running walk is a four-beat gait intermediate between the walk and the rack. It is an easy gait on both the horse and the rider.

Fox Trot.—The fox trot is a broken trot characterized by more or less of a pace as indicated by the movements of the animal. This gait, like the running walk, is characteristic of the five-gaited saddle horse.

Detailed Structural Form.—The detailed structure of the horse will be considered under one general outline as follows:

HEAD AND NECK.—The head should be neat and clean, clear in outline, and well defined. It should have length, depth and breadth proportionate to the size of the animal. The lower jaw should be broad and open in the angle to accommodate the larynx when the neck is flexed and extended. The contour of the head should be clearly defined, thus indicating superior quality.

Forehead.—The forehead should be broad, flat, and straight. Good width between the eyes is especially significant of intelligence.

EXPLANATION OF FIGS. 18 TO 23.

FIG. 18.—Viewing action at the walk coming toward the observer. Observe movement of forelegs and shoulders especially. The legs should be placed directly under the body and there should be no winging, rolling, or paddling motion. (Courtesy of Indiana Agricultural Experiment Station.)

FIG. 19.—Viewing action at the walk going from the observer. Observe the snap, flexion of the joints, directness and hock movements. (Courtesy of Indiana Agricultural Experiment Station.)

FIG. 20.—Viewing action at the trot coming toward the observer. Observe general style of the animal, carriage, shoulder movements, directness and spring. (Courtesy of Indiana Agricultural Experiment Station.)

FIG. 21.—Viewing action at the trot going from the observer. Observe directness, elasticity, snap, and carriage of hocks. (Courtesy of Indiana Agricultural Experiment Station.)

FIG. 22.—Viewing action at the walk, side view. Observe length of stride, height, elasticity flexion of joints and balance. (Courtesy of Indiana Agricultural Experiment Station.)

FIG. 23.—Viewing action at the trot, side view. Observe length of stride, height, regularity, balance and hock action. (Courtesy of Indiana Agricultural Experiment Station.)

Ears.—The ears should be medium in size, erect, pointed, and show superior quality by having a fine, clean coat of hair.

Eyes.—The eyes should be large, bright, clear, and prominent. There should be no indication of present or recurring disease.

Muzzle.—The muzzle should be large, broad, deep, and indicate quality. A large, coarse muzzle is not associated with superior quality throughout the animal. The lips should be regular, and the teeth sound, with no indication of alterations having been made.

Nostrils.—The nostrils should be large and open, which is indicative of a plentiful supply of air in the lungs.

Neck.—The neck should be proportionate in length, depth, and thickness to the type of the animal. The crest should be well developed, the throat-latch fine, with the neck smoothly joining the shoulders.

FOREHAND.—*Withers.*—The withers should extend high, well back, and should be free from scars or other alterations. Low withers are objectionable.

Shoulders.—The shoulders should be long, smooth, and sloping. Straight shoulders are usually associated with short, upright pasterns. Both of these conditions are antagonistic to free action and freedom from diseases of the feet.

Arms.—The arms should be well muscled and carry well forward. Such a formation is usually associated with sloping or oblique shoulders.

Forearms.—The forearms should be broad, deep, straight, and muscular. The length should be proportionate to the type of the animal.

Knees.—The knees should be long, broad, smooth and deep, thus indicating a well-supported animal, and ample space for muscle attachments.

Canons.—The canons should be short, broad, and flat. The tendons should set well back, which gives squareness of form to the leg and thus added strength. Cut-under canons are very objectionable, showing permanent faultiness in an animal.

Fetlocks.—The fetlocks should be wide, smooth, regular, and strongly supported.

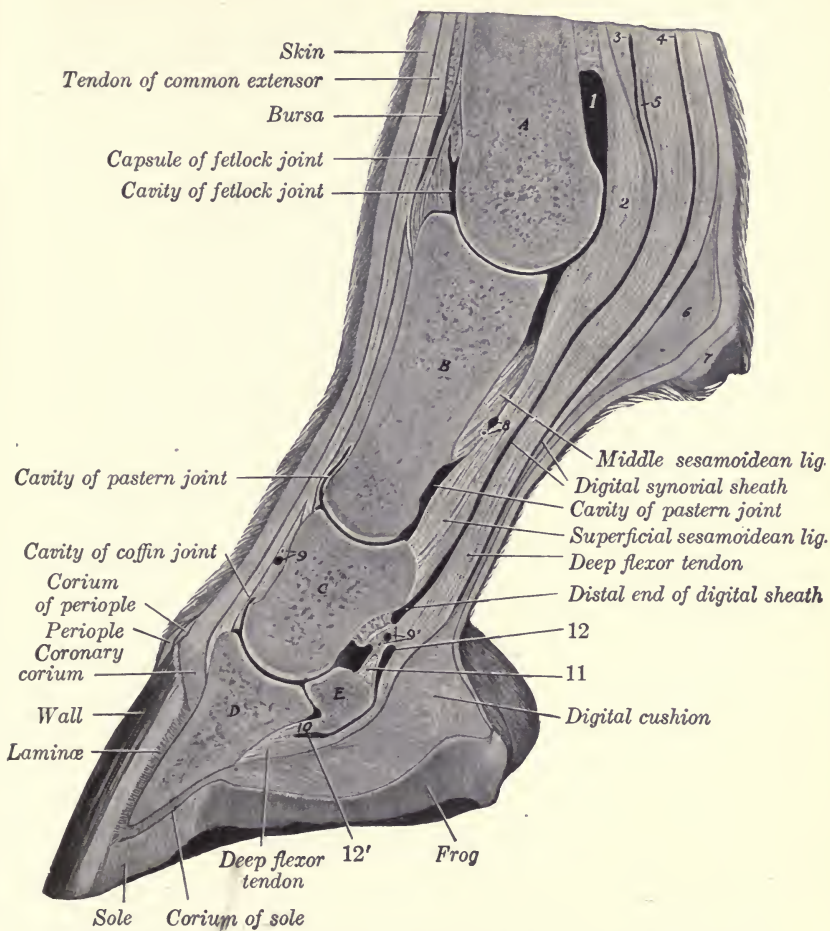


FIG. 24.—An important consideration in judging horses. Sagittal section of digit and distal part of metacarpus of horse: *A*, metacarpal bone; *B*, first phalanx; *C*, second phalanx; *D*, third phalanx; *E*, distal sesamoid bone; 1, volar pouch of capsule of fetlock joint; 2, intersesamoidean ligament; 3, 4, proximal end of digital synovial sheath; 5, ring formed by superficial flexor tendon; 6, fibrous tissue underlying ergot; 7, ergot; 8, 9, 9', branches of digital vessels; 10, distal ligament of distal sesamoid bone; 11, suspensory ligament of distal sesamoid bone; 12, 12', proximal and distal ends of bursa podotrochlearis. By an oversight the superficial flexor tendon (behind 4) is not marked. (Courtesy of L. W. Sisson, from *Anatomy of Domestic Animals*.)

Pasterns.—The pasterns should be long, strong, and sloping. Short, straight pasterns indicate imperfect action and lack of wearing qualities.

Legs.—The legs should, as a whole, be straight, strong, and well placed under the body. A perpendicular line dropped from the point of the shoulder should divide the leg and foot into two lateral halves. A line dropped from the point of the scapula should divide the elbow-joint and pass through the centre of the foot.

Feet.—The feet should be large, round, open at the heel, and the sole concave. The walls should be straight and the slope should correspond to the slope of the pasterns. The bars should be strong, the frog large and elastic, the heels wide, the horn dense, dark colored, and smooth in texture.

Body.—*Heart girth.*—The heart girth is synonymous with the chest. It should be deep, broad and full, thus giving ample space for the heart and lungs.

Ribs.—The ribs should be long, well arched, and placed close together. Good length is indicative of full depth in the body, and close spacing to compactness or close knit form.

Back.—The back should be short, straight, broad, and strong.

Loins.—The loins should be smooth, broad, strong, deep, and full, which is indicative of a close, full-made coupling, one of the chief characteristics of a well-made animal.

Underline.—The underline should be long and well let down in the flanks, which indicates good depth of body.

HINDQUARTERS.—*Hips.*—The hips should be wide, level, and smoothly covered. Prominent hips are usually indicative of open conformation.

Croup.—The croup should be long, smooth, level, broad, and muscular. A dropping croup is not only unsightly but objectionable from the standpoint of power or action.

Thighs.—The thighs should be long, muscular, and deep. The width of the animal from the hips should be carried perpendicularly to the ground, a line thus drawn coinciding with the thighs.

Gaskins or Lower Thighs.—The gaskins or lower thighs should be long, broad, and muscular. The muscular develop-

ment in this region is indicative of the natural muscular development of an animal, thus making it possible to judge the muscular development as well in high as in low condition.



FIG. 25.—Right forehoof of horse, ground surface: 1, basal or ground border of wall; 2, laminæ of wall; 3, angle of wall; 4, bar; 5, sole; 5', angle of sole; 6, white line (junction of wall and sole); 7, apex of frog; 8, central sulcus of frog; 9, 9, collateral sulci between frog and bars; 10, 10, bulbs of hoof. (Courtesy of L. W. Sisson, from *Anatomy of Domestic Animals*.)

Hocks.—The hocks should be wide, deep, smooth, and strongly supported. The point of the hocks should be prominent. The size should be in proportion to the weight of the horse. The hocks are of fundamental significance in

the horse because of their direct correlation with efficient power and speed development.

Canons.—The canons should be short, strong, and broad, and the tendons should be well set back.

Fetlocks.—The fetlocks should be strong and well supported. Weak fetlock-joints in the hindfeet as well as in the forefeet are very objectionable.

Pasterns.—The pasterns should be long, sloping, and strongly supported.

Legs.—The hindlegs of a horse are of unusual significance and should, therefore, be straight, strong, and well supported throughout. A perpendicular line dropped from the point of the buttock should divide the leg and the foot into two equal parts. A perpendicular line dropped from the hip-joint to the ground should divide the foot, meeting the ground half-way between the heel and the toe.

Tail.—The tail should be set high, well carried, and should show quality by the character of the hair thereon.

Determination of Age.—Since the use of the horse is dependent on the amount and continuity of work performed and not on the quality of an edible product, as in meat-producing animals, which are influenced by age only under certain specified conditions, it is important to know the fundamentals of age determination. While in a general way the age of an animal can be approximately determined by their general appearance or condition, the teeth are the most reliable indications for practical usage. In judging age by the teeth it is very important to know the condition of the normal mouth, as the teeth are at times seriously affected by the soil on which animals graze or by the character and quantity of feed received. Liberal feeding on hard or flinty feeds may apparently hasten maturity, while light feeding on soft feeds or pasturing may retard it.

The teeth are also "bishoped" sometimes by unscrupulous dealers to renew the appearance of the cups which gradually disappear with age. This operation is performed by the use of a hot iron which burns a cup in the center of the teeth, thus making it appear that the natural cups are still present. Up to the age of five years the order of appearance of the six

permanent incisors in each jaw is indicative of the age. After this period the cups are relied upon to determine the age up to eleven years. After this second period of development the angle or slope of the teeth from the jaws and the general appearance of the animal are the only guides. While

some variations may occur in the displacement of the temporary teeth by the permanent ones and in the rapidity of the disappearance of the cups, the appearance of the teeth will show, within reasonable limits, the age of horses with normal mouths.

Temporary or Milk Teeth.

—The age of young animals may be determined by the characteristic appearance of the milk or temporary teeth, which are twelve in number, each jaw having six incisors.

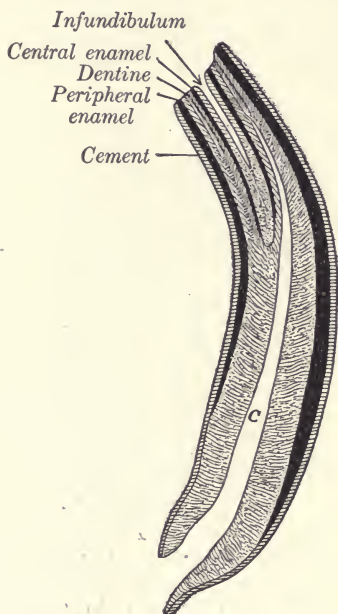


FIG. 26.—Longitudinal section of lower incisor tooth of horse: *C*, pulp cavity. Cement is shown in the infundibulum, but is not marked.) Courtesy of L. W. Sisson, from *Anatomy of Domestic Animals*.)

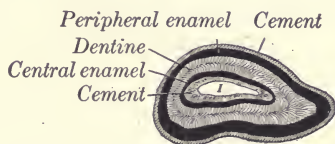


FIG. 27.—Cross-section of lower incisor tooth of horse: *I*, infundibulum. (Courtesy of L. W. Sisson, from *Anatomy of Domestic Animals*.)

The temporary teeth are slender, narrow, constricted at the neck, and much whiter than the permanent teeth. The permanent incisors are broader, thicker, and of a darker color. The temporary incisors, which are all visible at one year, remain intact until the two central temporary incisors are replaced by the first pair of permanent central incisors.

This occurs when the animal is two and one-half to three years of age, the remainder of the temporary teeth being replaced as described subsequently.

Order of Appearance of Incisors.—The permanent incisors of both the upper and lower jaws appear at the same time, and in determining the age during this stage of dentition reference should be made to the teeth in both jaws. The horse has six permanent incisors in each jaw in a full mouth and these appear as follows:

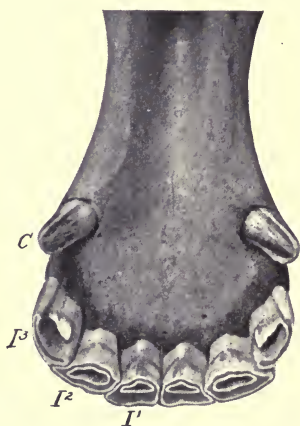


FIG. 28.—Lower incisor and canine teeth of horse, five years old: I^1 , I^2 , I^3 , incisors; C , canine. (Courtesy of L. W. Sisson, from *Anatomy of Domestic Animals*.)

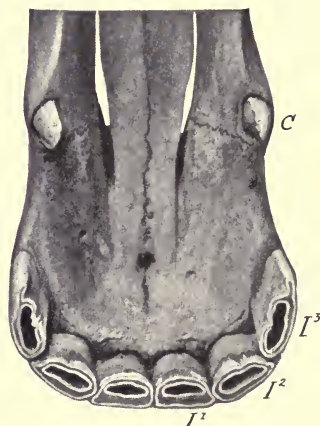


FIG. 29.—Upper incisor and canine teeth of horse five years old: I^1 , I^2 , I^3 , incisors; C , canine. (Courtesy of L. W. Sisson, from *Anatomy of Domestic Animals*.)

The center pair of incisors appear first, displacing the temporary pair when the animal is two and one-half to three years old. The second or intermediate pair displace the temporary teeth when the animal is three and one-half to four years old, and the third or corner pair displaces the corner temporary incisors at four and one-half to five years old. When these permanent incisors are all completely up and in wear the horse has a full mouth. After the animal reaches this five-year stage, the age is determined by the order of disappearance of the cups in the incisors.

Disappearance of the Cups.—The cups, which appear on the tables of the teeth, are quite reliable indications of age from the five to the eleven-year stage. At five years the cups in the central pair of incisors of the lower jaw show some wear, but it is not until the animal reaches the six-year stage that they disappear. The canines in males may appear at this age. At seven years of age the intermediate incisors lose almost all trace of their cups through wear, and at eight the corner incisors are worn and free from the cups described at the earlier stage.

At nine years of age the cups are either worn or disappear from the central pair of incisors in the upper jaw. At ten the cups of the two intermediate incisors have worn until they have disappeared, and at eleven the cups of the corner incisors have disappeared. After a horse passes this stage the age may be determined by the general appearance and condition of the teeth. As the age advances the tables or biting surface of the incisors become more triangular and the teeth spring from the jaw at a greater angle.

Method of Examination.—The examination of a horse involves two distinct viewpoints, the one from that of the purchaser and the other that of the judge in the show ring. The methods of examination are somewhat different, owing to the two distinct viewpoints from which animals are examined.

Involving the Purchaser.—The purchaser of a horse is more deeply interested in the peculiar traits or any unsound conditions which may prevail than is the show ring judge who merely passes on the value of an animal as indicated by a mere external examination. The purchaser should examine the horse in the stall to note how he stands and any other peculiarities which may be present. An examination should be made for cribbing, weaving, or other objectionable stable habits. The horse should then be backed out of the stall, noting closely any peculiarities in the use of the legs, particularly the hindlegs, or any serious disorders of the nervous system. Spavin may often be first detected by this examination.

After the horse is taken out the eyes should be examined

carefully, after which he should be observed at the walk, and at the trot, in both cases, as he comes toward, passes by, and goes from the observer. Defects in action, lameness, or other peculiarities may thus be detected. Any indications of stable vices, lameness, unsoundness or defects can usually be detected in this examination.

After completing the examination in the stall and while in action, the horse should be hitched to an appropriate vehicle and be given rather severe exercise to bring out any weakness or unsoundness in the wind. In making this examination, care should be taken to see that an apparent wind trouble is not due to an improperly adjusted harness. After the exercise has been completed the ear should be held close to the nostrils to determine whether wind troubles are present. A thorough examination should thus be made of the entire animal to determine any unusual condition which may exist. If in the case of a breeding animal an examination of the records from the standpoint of breeding qualities is important.

Involving the Judge.—The judge of horses in the modern show ring does not usually have the responsibility of detecting disease or unsoundness. This work is done by the official veterinarian who makes a report on such animals and their condition from the standpoint of soundness thus determined. The judge may not apparently follow a definite procedure in making the examination. However, such a course is desirable. The examination should be started by viewing the animal from in front, thus noting the expression, the features of the head, width and depth of chest, and the directness and conformation of the feet and legs. He should then pass to the side, noting the length, depth, weight, and scale. The slope of the shoulder, length of the back and carriage of the head and neck, height of the withers, and the conformation of the feet and legs, back, loin, croup, thighs, and flanks should be examined.

From the rear view the width and depth of the hind-quarters, the direction and conformation of the legs and feet should be determined. The width and slope of the croup should also be noted, the tail setting and the fulness

of the quarters. After this examination is completed the opposite side should be examined to determine any unusual condition which might be present.

The animal should then be moved, noting the various phases of action as the animal comes toward, passes by, and goes from the observer. The length, height, directness, regularity, and balance of the stride should be observed. This completes the examination, and after having reached this point a balance of the animal should be effected. Many times an animal which appears to be a perfect individual from the standpoint of conformation is very defective in action, thus giving it a very much lower rating than otherwise. The importance of action can be best determined by making a close examination for the various conditions of unsoundness, defects, and peculiarities in the action. The value of a horse cannot be determined until the actual combined examination is made when at rest and in motion.

CLASSIFICATION OF HORSES.

Horses may be divided into two fundamental divisions for the purpose of studying their distinctive conformation and uses. The first includes the draft or power division, and the second, the light horse division which is subdivided into several other type and breed groupings, depending on breed qualifications and the specific use of the animals. These two main divisions will be adhered to in discussing the subject, being used only for arbitrary purposes.

Horses are more specifically divided into groups or types, breeds, classes, and subclasses. The five groups or types are represented in the draft, heavy harness, light harness, saddle, and pony groups. These five groups or types may be subdivided into the various pure breeds which conform to the broad use or purpose, and second, into specific market and show classes. In the first division of the groups or types into breeds, the distinction is based solely on pure breeding or blood lines, or on certain standard qualifications and requirements. The second division of the types into classes, and the third into subclasses is based on specialized uses

or purposes, regardless of blood lines or purity of breeding. While these classes and subclasses may contain pure specimens of the various breeds represented in the groups or types, this is not a requirement.

CLASSIFICATION OF HORSES.

	Breed.	Type.	Class.	Subclass.
Draft Division	{ Percheron Belgian Clydesdale Shire Suffolk }	Draft	{ Drafter	{ Light Heavy
			{ Logger	{ Eastern and export
			{ Chunk	{ Farm Southern
			{ Expresser	
Light Division	{ Cleveland bay German coach French coach Hackney }	Heavy harness	{ Coach horse	
			{ Park horse	
			{ Cob (intermediate with Cab [pony type)	
			{ Runabout	
	American Standardbred	Light harness	{ Speed or race horse	{ Trotter Pacer
			{ Roadster	
			{ Combination horse	
	American Saddle horse	Saddle	{ Walk-trot- canter	
			{ Gaited	
			{ Hunter	{ Light Medium Heavy
			{ Race horse runner Cavalry	
	{ Shetland Welsh Hackney ¹ }	Pony	{ Polo pony	
			{ Shetland (under 46 inches) 11-2 to 14-2	

Conformity to all of the attributes, namely, weight quality, conformation, symmetry, temperament, disposition, style, action and finish, which constitutes utility or purpose in the specific division under observation, is the basis of

¹ Hackney under 14-2 hands, with breed characteristics accentuated.

distinction. Because of the varied and specialized purposes for which horses are used, there is occasionally an overlapping or combination of classes. This fact is brought out in case of the expresser, runabout, and combination horse. It is recognized that classifications vary somewhat, depending on the authority and the basis on which they are made. Gay divides horses into four types, namely, power, speed, show, and saddle. This division is made on the basis of mechanics, each type being subdivided into classes in accordance with market and show ring demands.

CHAPTER VII.

JUDGING DRAFT HORSES.

DRAFT GROUP OR TYPE.

THE term draft is significant of weight, massiveness, and, therefore, the development of power. An animal possessing these qualifications has certain definite attributes which qualify it for work of this character. The draft type is divided into three generally significant classes, namely: drafter, logger, and chunk.

Draft Conformation.—The form of the draft horse should be massive and compact. Animals of this type should be low set, wide and deep in the body, with strong bone and deep muscling, both of which are characteristic of the horse with power attainments. These attributes should be correlated so that the animal possesses perfect symmetry throughout. A draft horse properly made should be low set, square and compact and at the same time symmetrical from every angle. Weight properly distributed is the first essential of a draft animal. Based on weight alone, a horse might possess sufficient weight, yet because of long legs and a rangy body such an animal would not be acceptable on the market or in draft service.

From a structural viewpoint the head should be long, broad and deep, yet symmetrical with the other parts of the body. The neck should be of sufficient length and depth to harmonize perfectly with the weight of the animal. The head and neck should blend smoothly, and the neck should deepen gradually toward the shoulders, which should be long and sloping, and extend well back in order to give strength in the back, proper style, and symmetry. A moderately sloping shoulder on a draft horse is usually associated with a short back, which is characteristic of a typical draft animal.

The back should be short, broad, and deeply muscled. The loin should be broad, level, heavily muscled, and should be indicative of a close, short coupling. The ribs should be well arched, closely placed, and the chest should be deep and broad on the floor. The flank should be full and low. The hindquarters should be broad, deep, the croup level, well muscled, and the thighs deep and compact. The bone should be large, square, fine and dense, and the forearm



FIG. 30.—Characteristics of a good draft gelding, illustrating the draft type.

and gaskin heavily muscled. As a whole, the draft animal should be broad, deep, compact, and massive in appearance throughout.

Quality.—Quality in the draft animal signifies the same condition as applied to the light horse or other classes of live stock. However, in the light horse there is usually a more significant indication of quality in the hair, skin, and bone. While quality is just as essential in the draft horse it is usually not present to the same degree. The principal indications of quality are in the head, hair, hide, and bone.

The head should be broad, deep, and clearly outlined by distinct facial features. Each part of the head should be clearly outlined, there being no evidence of plainness or lack of definition or refinement. The head is one of the best indications of quality. It usually portrays intelligence also, and indirectly constitution and form requirements. A large, coarse ear, a straight undefined face and head, and a large, plain muzzle portray a general lack of quality, character, and intelligence. A fine glossy, mossy coat of hair, soft to the touch is indicative of what may be found beneath. The skin on an animal with a coat of hair so characterized is usually soft, pliable, and elastic. The bone is an unusual indication of quality. If it is fine, hard and dense with fine texture, it is ordinarily accompanied by a corresponding degree of quality throughout the body. It may be possible to get too much quality, although as much should be apparent as consistent with the required weight and substance of the draft animal.

Constitution and Endurance.—The value of the draft horse is significantly magnified by the amount of constitution and endurance possessed. The indications of constitution are largely in the development of the muzzle, nostrils, head, and chest. The head should be long, broad, and clearly defined. The muzzle should be broad, deep, and the nostrils large and open to give free access of air into the lungs. The jaw bones should be long and broad at the angle or opening. The chest should be broad and deep to accommodate the vital organs. A broad spring of rib and a short coupling are indicative of constitutional development. The correlation and compactness of the body measures quite accurately the amount of constitution which an animal possesses.

Endurance is closely associated with constitutional development. The value of a draft animal is therefore dependent in a large measure on its enduring or lasting qualities. Endurance is associated and otherwise indicated by the structural condition of the animal, especially in the head, chest, coupling and the character of the bone, skin and hair. A coarse-textured bone, rough, coarse hair, lack of definition and other quality attributes are significant of low

enduring qualities. Such development when associated with inferior constitutional development is doubly significant of inferior lasting or enduring qualities.

Temperament.—The temperament of an animal is generally portrayed by its general conformation and condition. The work of the draft animal is to move loads or propel weight. This naturally suggests the massive, compact form previously described and therefore a less active temperament than in the light animal, which is naturally characterized by unusual life and vigor. While there is usually a wide variation in the temperament or nerve force of the draft and light animals, sluggishness should not characterize either type. The temperament of the draft horse is usually lymphatic. Any tendency toward sluggishness, however, is especially objectionable, as the draft animal should work willingly and consistently. There should be a sufficient tone of the nervous system maintained, therefore, to insure this condition.

Style and Action.—The style and action of the draft horse is hardly comparable to that of the lighter types of horses, although unusual style and action are often exhibited. Draft horses are of lower breeding than light horses and are, therefore, not capable of exhibiting comparable attainments with the lighter animals. However, there should be every indication of style consistent with the type in the general make-up of the animal. The head should be clean in outline, the neck arched, the shoulders sloping, the body closely coupled, the quarters well muscled, and the body low set. The draft horse should exhibit compactness and symmetry of form throughout.

The action of the draft horse, while not as highly developed as in the light horse, should possess all the requisites of the associated gaits. Every phase of the action should be comparable with the type of the animal in question. Both the walk and the trot should be characterized with a long, regular stride and a smooth, straight, well-balanced action otherwise. The walk is the most important gait of the draft animal. It should be characterized by directness, regularity, smoothness, and balance. Any deviation from this line of action is objectionable as it shows faulty con-

formation and may injure the value of the individual in question or that of future generations.

A stilted or rolling motion caused by a wide front or by the legs being set improperly on the body should be discriminated against severely. A winging or paddling motion of the feet, either at the walk or trot, is extremely objectionable. A free, quick, snappy walk and trot are usually correlated with other important attributes such as style, breeding, individuality, and finish.

SCORE CARD FOR DRAFT HORSES.

Perfect score.

GENERAL APPEARANCE—19 Points.

<i>Height:</i> estimated.....hands, actual.....	
<i>Weight:</i> over 1600 lbs.; estimated.....lbs. score according to age	6
<i>Form:</i> broad, massive, evenly proportioned, symmetrical, blocky	4
<i>Quality:</i> refined; bone clean, large, strong; tendons clean, defined, prominent; skin and hair fine; "feather," if present, silky	6
<i>Temperament:</i> energetic; disposition, good	3

HEAD AND NECK—8 Points.

<i>Head:</i> proportionate size, clean cut, well carried; profile straight	1
<i>Forehead:</i> broad, full	1
<i>Eyes:</i> bright, clear, full, same color	1
<i>Ears:</i> medium size, well carried, alert	1
<i>Muzzle:</i> neat; nostrils large, flexible; lips thin, even, firm	1
<i>Lower Jaw:</i> angles wide, space clean	1
<i>Neck:</i> muscled, arched; throat-latch, fine; windpipe large	2

FOREHAND—22 Points.

<i>Shoulder:</i> moderately sloping, smooth, snug, extending well back	3
<i>Arm:</i> short, strong muscled, thrown back, well set	1
<i>Forearm:</i> long, wide, clean, heavily muscled	2
<i>Knees:</i> straight, wide, deep, strong, clean	2
<i>Canons:</i> short, wide, clean; tendons clean, defined, prominent	2
<i>Fellocks:</i> wide, straight, strong, clean	1
<i>Pasterns:</i> moderately sloping, strong, clean	3
<i>Feet:</i> large, even size, sound; horn dense, waxy; soles concave; bars strong, full; frogs large, elastic; heels wide, one-half length of toe, vertical to ground	8

Carried forward 49

	Perfect score
Brought forward	49
BODY—9 Points.	
<i>Chest:</i> deep, wide; breast bone low; girth, large	2
<i>Ribs:</i> deep, well sprung, closely ribbed to hip	2
<i>Back:</i> broad, strong, muscular	2
<i>Loins:</i> short, wide, thick muscled	2
<i>Underline:</i> low, flanks full	1
HINDQUARTERS—32 Points.	
<i>Hips:</i> broad, smooth, level, well muscled	2
<i>Croup:</i> wide, heavily muscled, not markedly drooping	2
<i>Thighs:</i> deep, broad, strong, muscular	3
<i>Quarters:</i> plump with muscle, deep	2
<i>Stifles:</i> large, strong, muscular, clean	2
<i>Gaskins:</i> (lower thighs) long, wide, clean, heavily muscled	2
<i>Hocks:</i> large, strong, wide, deep, clean, well set	8
<i>Canons:</i> short, wide, clean; tendons clean, defined, prominent	2
<i>Fetlocks:</i> wide, straight, strong, clean	1
<i>Pasterns:</i> moderately sloping, strong, clean	2
<i>Feet:</i> large, even size, sound; horn dense, waxy; soles concave; bars strong, full; frogs, large, elastic; heels, wide, one-half length of toe, vertical to ground	6
ACTION—10 Points.	
<i>Walk:</i> fast, elastic, regular, straight	6
<i>Trot:</i> free, springy, balanced, straight	4
Total	100

Breed and Class Characteristics.—The draft type of horse is characterized by five distinct breeds, namely: the Percheron, Belgian, Clydesdale, Shire, and Suffolk. While the latter is not of special significance, it is well worthy of consideration. From these breeds are drawn the various market and show classes of draft horses which include drafters, loggers, and chunks. The drafter is subdivided into light and heavy, and chunks into eastern and export, farm and southern. These terms are used to distinguish for market and show purposes only.

The following descriptions are used to bring out the chief characteristics of the draft breeds and the market and show classes which are produced, either in the pure bred or grade form, from these breeds.

Percheron.—The original home of the Percheron horse is La Perche, France. The breed has been developed into an excellent type of draft animal except for some lack of scale

and inclination to light bone. The general appearance of the Percheron is characteristic of the draft type, although specimens of the breed possess more rotundity, smoothness of form, general activity and refinement than other draft breeds. Stallions of approved breeding should weigh 2000



FIG. 31.—Percheron stallion.

to 2200 pounds. The weight of the mares ranges from 1600 to 1800 pounds. The two colors most in favor are gray and black, the former being more desirable usually. Other colors such as bays, browns, and chestnuts, characterize the breed. One of the chief distinguishing characteristics of the Percheron breed is the weight which they attain, at the same time retaining quality and refinement more

characteristic of the light horse breeds. The temperament of the Percheron is energetic, the disposition good, ranking above other draft breeds. The action of the Percheron is rather unusual because of the extreme flexion possessed compared with other draft breeds. The distinguishing features of the Percheron from other breeds is the unusual refinement, lighter bone, action, and high station. The bone is unusually clean, not having feather on the legs. Com-



FIG. 32.—Percheron mare.

pared with the Clydesdale and the Shire the Percheron is smaller, having less substance, and a more characteristic smooth turned body and finish.

The Percheron breed is sometimes erroneously designated as Norman or French Draft. The latter terms are not now in use. They include several types of draft horses produced in France but not generally recognized as of great significance in this country. Certificates of registration should specify the Percheron breed approved both in France and America if

an imported animal and trace to properly recognized stock if home-bred.

Belgian.—The Belgain breed of draft horses is a native of Belgium and in this country has reached a rather prominent position among other draft breeds. This breed is noted for its extreme low station, massiveness, and compactness. The head is square, the neck very short, usually having a

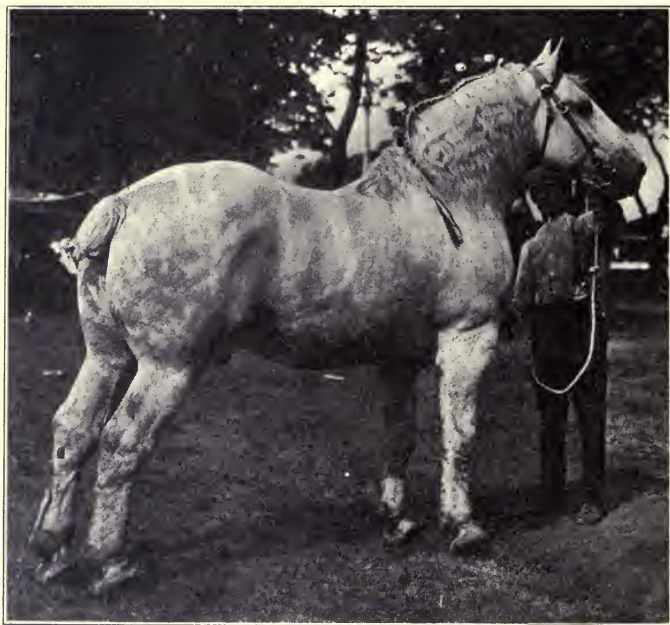


FIG. 33.—French Draft stallion.

rather heavy crest. The body is broad, deep, and exceedingly compact. One of the chief objections to the Belgian has been the legs, which are inclined to be large and undefined, both in the joints and in the canons, pasterns, and feet. This objection has been overcome, somewhat, by careful breeding. The two colors usually predominating are roan and chestnut, although other colors such as bay, brown,

gray, and black occur. Because of the extreme compactness of the Belgian breed, grade animals are very popular for feeding purposes.

The general appearance of the Belgian is that of a massive, robust-constituted animal. The body is broad and deep,

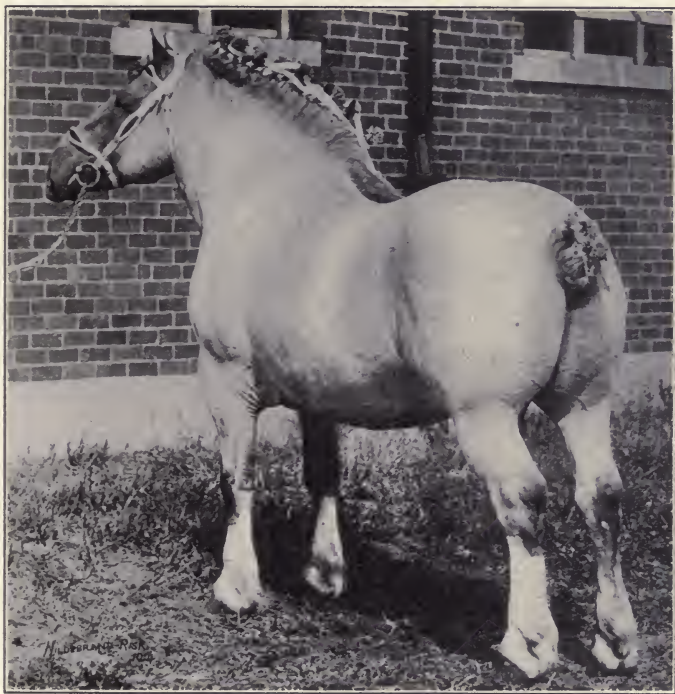


FIG. 34.—Belgian stallion.

the coupling short, and the hindquarters exceptionally well developed. The action is characteristic of their broad, massive development. Considering the weight and massiveness of the breed, the action is very smooth and free. The chief objection to the Belgian is their tendency to grossness, especially in the legs, rather small feet, short neck, and general lack of refinement. The legs are devoid

of the long hair or feather characteristic of the Clydesdale and Shire breeds. The roan color of the Belgian is becoming very characteristic and in many cases it is a distinguishing mark in some of the leading specimens of the breed which have been shown in this country. Compared with other draft breeds the Belgian is lower set, broader, deeper, and more compact throughout. Specimens do not possess as much refinement as the Clydesdale or the Percheron breeds.

Clydesdale.—The Clydesdale breed originated in Scotland along the river Clyde. The breed is especially noted for its quality and characteristic action. The weight varies from 2000 pounds upward in stallions of approved breeding and in mares from 1600 to 1800 pounds. The color varies, including bays, browns, blacks, and grays. Gray is not a characteristic color, although at one time it was so. The breed is characterized by white markings, especially on the face and the four legs. White occurs sometimes in large splashes on the body and there may be an intermixture of white throughout more or less of the body. The conformation of the Clydesdale is not as drafty as in other breeds. The body is rather long, comparatively shallow, the ribs lacking in length, and the back somewhat inclined to be low. The shallowness of the body gives specimens of the breed a rather upstanding appearance. Although the weight is acceptable, the animal is not built to the best advantage for draft purposes, especially as compared with other more massive compact breeds.

The action of the Clydesdale is one of its most acceptable features. The stride is long, quick, regular, and well balanced. The hock is unusually strongly constructed, and the action corresponds with this condition. The quality of the Clydesdale is an important attribute, this characteristic, as in the Percheron, being unusually developed. Action is exemplified in the slope of the shoulders, pasterns, and leg development. The breed is characterized by feather on the legs and open-textured, shelly feet. The chief criticisms of the breed are deficiency in scale, their short-rib development and a criticism of the color markings, especially the white, which has no special distribution. The Clydes-



FIG. 35.—Clydesdale stallion.

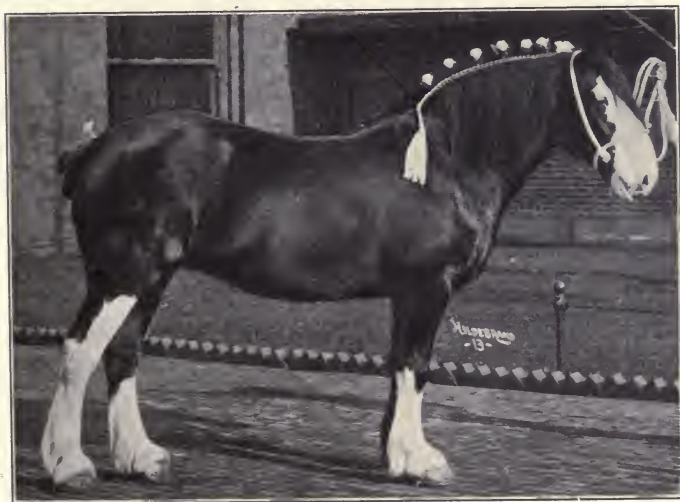


FIG. 36.—Clydesdale mare.

dale breed is comparable in many respects to the Shire, although it possesses much better quality and action but less scale than the latter.

Shire.—The Shire horse originated in England. It is in many respects a complement to the Clydesdale, which is a product of Scotland. The Shire is one of the heaviest draft breeds, from this standpoint giving them a peculiar draft horse characteristic. The colors of the Shire are black,

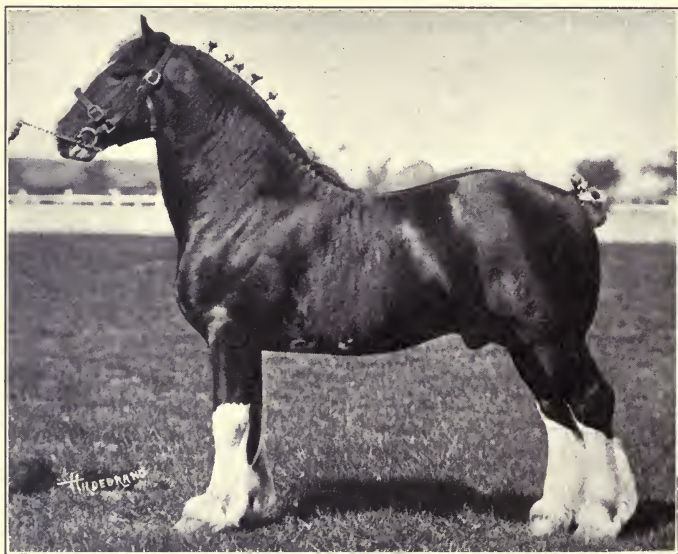


FIG. 37.—Shire stallion.

bay, brown, chestnut, roan, and gray. The breed possesses a very wide variation in respect to color. It is characterized by white points similar to those in the Clydesdale. While the Shire possesses unusual substance, the breed is lacking in quality, especially as compared with the Clydesdale. The hair and the bone have a rather coarse, meaty tendency, while the hoof is often open and shelly in texture. The contour of the Shire is fair. The head is rather large and inclined to be plain. The same condition is exhibited

throughout the animal, meatiness being too closely associated with the breed.

Closely associated with the lack of quality and finish is the rather sluggish temperament characteristic of the breed. The rather unusual development of feather, which is in great favor with English breeders, is not entirely popular with



FIG. 38.—Shire mare.

American breeders. The action of the Shire is what would be expected in an animal possessing the massiveness and inclination toward grossness which characterizes the breed. Compared with the Clydesdale the action is not as snappy, direct, or as well balanced. The breed has not become popular in this country, largely because of the criticisms made. More quality with less scale and substance, a better

temperament and more characteristic action would make the breed much more popular. When crossed on lighter breeds the Shire imparts unusual size and substance not usually obtained from other breeds.

Suffolk.—The Suffolk is a native of Suffolk County, England. While the breed has been introduced in America to some extent, it has never become popular. Information concerning the breed is more interesting from an authorita-

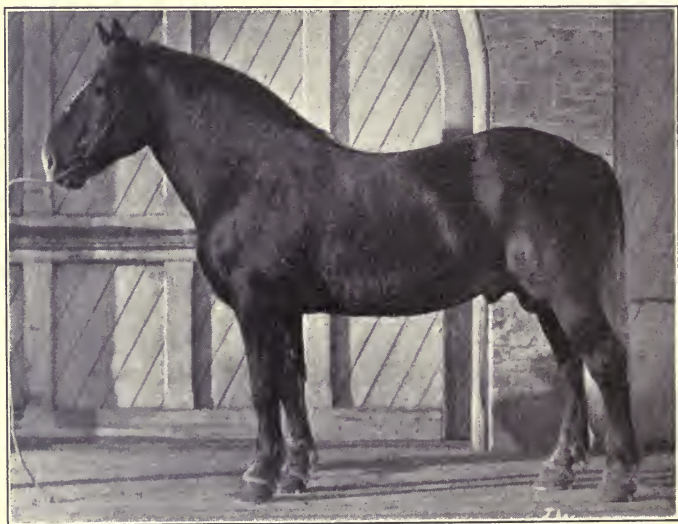


FIG. 39.—Suffolk stallion.

tive standpoint. The color of the Suffolk is characteristic. Chestnut of some shade with very little white accompanying it is an established breed attribute. The mane and tail are often light or flaxen. The breed is not typical of the true draft type, as it often lacks in scale and is inclined to be light in bone. The head is of medium size, the ears rather small and erect, and the nose slightly inclined to be Roman. The neck is comparatively short, the body fair in depth, and the hindquarters only medium in development of muscle. The bone is clean and the legs free from feather, this being a

rather popular, although a rather unimportant, feature of the breed.

The action of the Suffolk ranks well, although there is a slight tendency to twist the hocks when moving. This has been largely overcome, however, through careful breeding. The temperament and disposition of the breed is exceedingly well developed. Specimens of the breed are easy to keep, and considering their weight, are capable of doing heavy and continuous work. They are docile, quiet, and well managed under a variety of conditions. The chief objections to the breed are lack of weight, light bone, and their rather soft, shelly feet. The breed has not been imported to any extent and consequently is not widely distributed in this country. Wherever used, however, they have become quite popular for general work on the farm. Wallace describes the Suffolk Punch as follows:

"The Suffolk Punch is named from its native county, and from its compact and rounded form, its thick-set body, and short, hard, clean legs and fairly short pasterns, free from coarse hairs. The color is chestnut. White legs or a bald face are very objectionable. It is said that the color was derived through a cross with imported Norwegian horses, brought, like some of the progenitors of the trotting Hackneys, by the early Norse invaders. The form and action of certain of the Norfolk hackneys of the day leave no reasonable grounds for doubting that; however, the Norfolk trotter and Suffolk Punch may now differ in size, style, and general appearance, they must have been intimately connected with one another at some period."

Class Characteristics.—The recognized classes involved in the draft group or type, as exemplified in the market and show classes, include drafters, loggers, and chunks.

Drafter.¹—Draft horses are representative of the ideal which characterize the market and show ring. Such animals should be broad, deep, massive, and possess ample bone and muscle development with quality and refinement. They should stand from 15-3 to 17-2 hands high and weigh not under 1600 pounds. Drafters are worked in various ways

¹ See illustration, p. 114.

but usually in pairs and four-in-hand hitches. Single and six-in-hand hitches are rather uncommon, especially the latter, except for show ring purposes. The drafter should be low set, compact, and smooth in finish. This class is characterized from the logger largely by the superior quality, greater symmetry, and unblemished condition which they should possess. Drafters are sometimes divided into light and heavy.

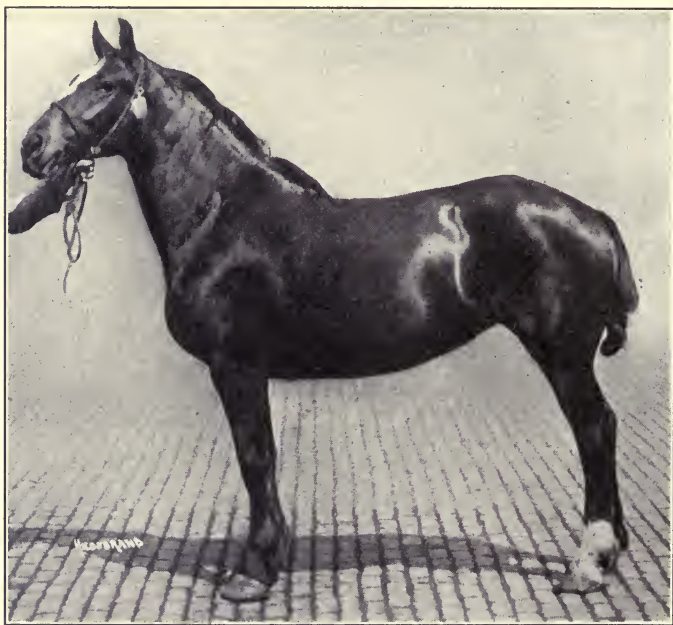


FIG. 40.—Expresser.

Logger.—Loggers are a complement to drafters except for smoothness, quality, and finish. Such animals are often used for rough, heavy work where general appearance, such as quality and finish, are not required. Loggers may be blemished without detracting seriously from their value, as they are used chiefly in lumber camps or other work where showy appearance is not an important attribute.

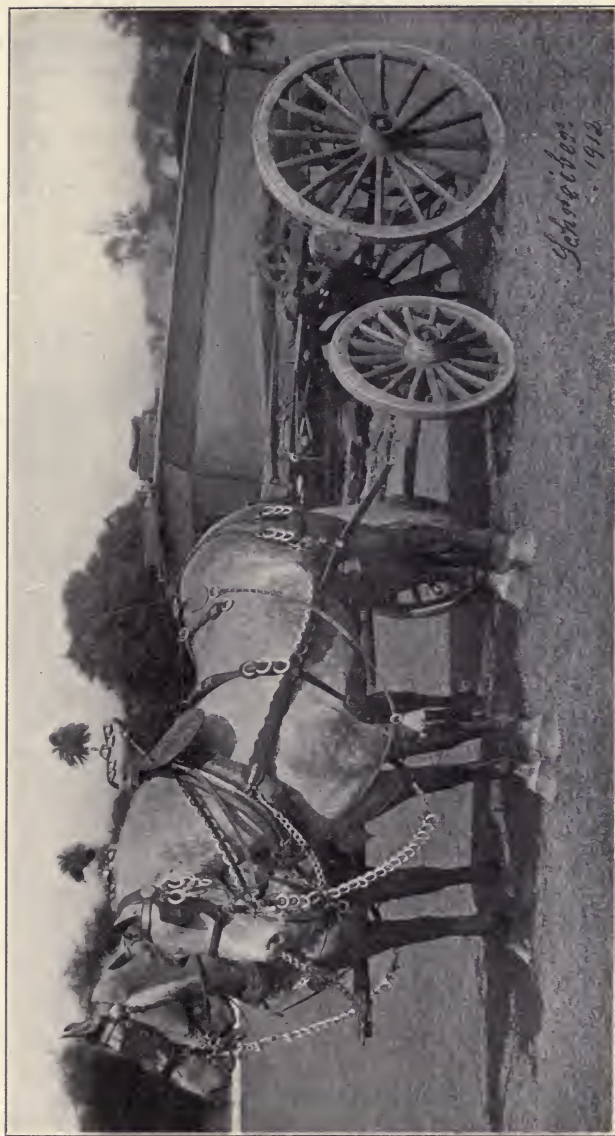


FIG. 41.—A team of chunks.

Chunk.—Chunks are exemplified in animals possessing draft form but lacking in scale and weight. The range of this class is from 850 to 1500 pounds. Chunks are well proportioned, compact, and therefore of greater value under conditions where handy weight is desirable, such as rather rapid work in the city or work of a general nature on the farm. Chunks are divided into three classes: Eastern and export chunks stand from 15 to 16 hands high and weigh



FIG. 42.—Fire horses.

from 1300 to 1550 pounds. The action should be elastic, straight, quick, and well balanced. Farm chunks are moderate-sized animals standing from 15 to 15-3 hands high and weighing from 1200 to 1400 pounds. The action should be quick, straight and well balanced, trotting well if necessary to do so. Southern chunks range in height from 15 to 15-3 hands and weigh from 850 to 1250 pounds. They are usually fine in bone, possess good quality, and should have good action. Because of the varied sources from which

they are drawn there is a plentiful supply on the market and, consequently, they sell for very moderate prices.

Expresser.—Expressers are draft horses which have draft form with a reasonable amount of coach horse finish. They range in height from 15-3 to 16-2 hands and weigh from 1200 to 1500 pounds. Such a horse must have the weight to carry a good load and the finish and action to take it at a reasonably fast rate. Expressers should therefore walk and trot well, having straight, regular and well-balanced action with both knee and hock development and more than the usual flexion.

CHAPTER VIII.

JUDGING LIGHT HORSES.

Classification.—Light horses are divided into four rather distinct groups or types which include heavy harness, light harness, saddle horses, and ponies. Under each of these groups or types are classed the various breeds and classes representing or conforming to the standard requirements. The four main types included are those recognized from the market and show yard standpoint. The pure-bred representatives of these types are represented in the coach breeds, the American Standardbred,¹ American Saddle Horse, Thoroughbred Running Horse, and the Shetland, Welsh, and Hackney pony breeds.

HEAVY HARNESS GROUP OR TYPE.

The distinguishing marks of the heavy harness group or type are principally the form, symmetry, finish, and action. Unless these qualifications are possessed in all important details horses belonging to this group will neither show nor sell to advantage. Their value is fixed largely by these qualifications. Contrasted with the other light types of horses, they are smoother, closer knit, have more finish, symmetry, and action. The head should be medium in size, clearly defined, the eyes large and the forehead broad, thus showing great intelligence. The face should be straight, the muzzle large, the nostrils open, lips thin, and the angle of the lower jaw-bone wide. The throat-latch should be clean, the neck of medium length, depth, smoothly muscled, and set well back on clearly defined, oblique shoulders. The

¹ Bred to standard requirements. See official trotting and pacing standards, page 152.

body should be round, the ribs well sprung, the coupling short, and otherwise full, smooth, and close knit in form. The legs should be straight, strong, the joints well defined, the bone hard, smooth, and dense, and the tendons should extend well back from the bone, thus giving a square, clean-cut, well-defined appearance. Viewed from any angle the heavy harness horse should be a model of style, smoothness symmetry, and action. Rough, undefined joints or other parts of the body so defined detract seriously from the value of animals belonging to this type. Quality, as indicated in the bone, hair, and general refining attributes, is important. Rotundity of form, smoothness, symmetry, general



FIG. 43.—The coach type.

refinement, and action with extreme flexion are the important attributes of this group or type.

Quality.—The quality of the heavy harness horse is one of the chief attributes. Combined with smoothness and extreme finish it constitutes one of the real fundamentals in judging heavy harness horses. Without quality and the usually associated style and prominent carriage, animals purporting to represent this type would not only be objectionable but ordinarily disqualified. Representatives of the type should be able to appear and act in accordance with the highest qualifications of show ring judging.

Temperament.—The temperament of the heavy harness horse should be lively and characteristic of continued display

of style and action. Any inclination to a lymphatic or sluggish temperament depicts qualities not associated or acceptable in the heavy harness breeds. As a whole a mere glance at an animal of this type should indicate a complete harmonious correlation in a smooth, close-knit form, high finish and extreme flexion of the knees and hocks in action. These qualities should all be directly associated or correlated with a strong, highly developed nervous organism.



FIG. 44.—Action of the coach horse, illustrating extreme flexion.

Action.—Action in the heavy harness horse is intermediate in speed between the draft and light harness breeds. Extreme speed is not desirable. Such qualities are unassociated with the high knee and hock action desired. Speed and style in the action of the heavy harness horse are antagonistic. The stride should be of medium length, direct, regular, high, and well balanced. A continuous, regular folding and unfolding of

the legs when in action is characteristic of the desired movement in this type of horse.

Breed Characteristics.—The heavy harness group includes three rather significant breeds and one other, the Cleveland Bay, not of special importance in this country. From the standpoint of market and show ring classes, this group or type includes four regular classes, namely: coach, park,



FIG. 45.—French Coach stallion.

cob, cab, and the runabout, which is intermediate between the heavy and light harness types.

French Coach.—The French Coach breed was originally a Demi-sang or Half-blood. Because of this fact the breed is not as uniform in type as those which have been purer bred for a specific purpose, keeping the blood lines intact, as in all recognized pure breeds. The type of the French Coach is somewhat rangier and more upstanding than the German Coach. The height averages about 16 hands and the weight

ranges from 1150 to 1400 pounds. The color is usually solid, with one or more white points. Brown, dark bay, chestnut, and black are the predominating colors. Specimens of this breed are usually showy in front, although the type varies to a considerable extent. Some animals show too much sluggishness at times for the best display of style and action.

The body of the French Coach is longer, and has less depth than the German Coach. The head is broad and of medium length, the ears erect, and the eyes bright and prominent, the general make-up of the head and neck showing considerable intelligence and refinement. The shoulders are usually sloping, the back reasonably short, and the underline long and straight. The action of the French Coach is quite characteristic of the heavy harness breeds, showing considerable style and flexion in the execution of the gaits, although there is a tendency for the hock action not to correspond to that in front. The quality is not as well developed as in the Hackney, although it is somewhat better than in the German Coach. The temperament is active, although a characteristic not generally as regularly associated with this breed as with the Hackney.

German Coach.—The German Coach breed is a native of Northwestern Germany. It is bred especially in Hanover, Oldenburg, Schleswig-Holstein, and the district of East Friesland. Representatives of this breed have been variously distributed in this country as Hanoverian, Oldenburg, and German Coach. The breed is characterized by a solid color, either of bay, brown or black, with one or more white points, usually on the hindfeet and in the face. The breed averages about 16 hands high and ranges from 1200 to 1450 pounds in weight. The body is somewhat larger and coarser than in the French Coach. On the whole, the breed possesses more scale, less quality, and not as characteristic action as the French Coach. There is an inclination to grossness and meatiness which is objectionable, especially in heavy harness horses.

Compared with the French Coach, the breed is less rangy, having a closer knit form. The back is shorter, the coupling closer, and there is usually greater depth of body.

In quality the breed does not exhibit as much smoothness or finish as desirable. The hair and bone have an inclination to be coarse and the joints somewhat large and meaty. The temperament is very good, although too much grossness and sluggishness are exhibited in some specimens of the

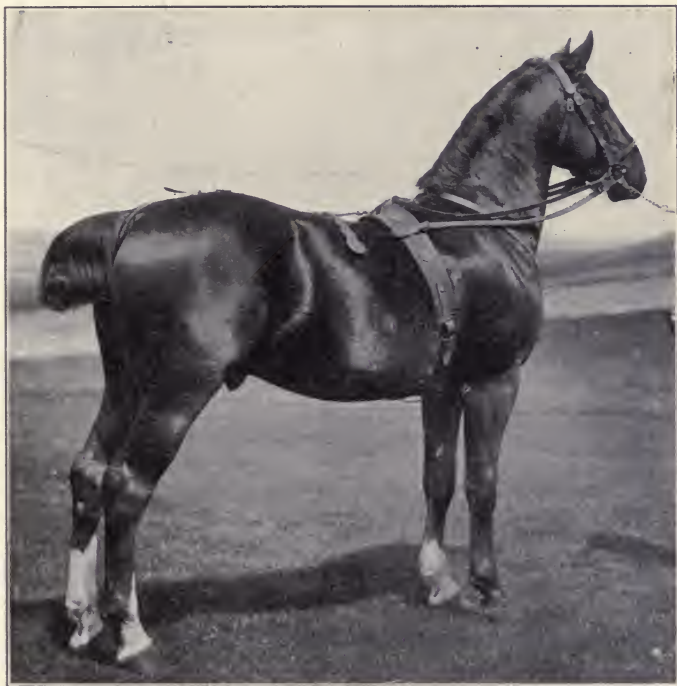


FIG. 46.—German Coach stallion.

breed. Conformation with less draftiness and more refinement in the features throughout would be desirable attributes. The action is not as high or as flashy as in the other recognized coach breeds. Often not enough speed is exhibited to give a harmonious, pleasing, well-balanced action, which is so much desired.

Hackney.—The Hackney horse is an English product, and from the standpoint of style, smoothness, symmetry, and action is especially characteristic of the attributes and attainments desired in heavy harness horses. The type is usually associated with a prominent breast, short back, a long, level, broad croup, deep ribs, short legs, and an extreme carriage of head and neck. The body is round, close knit, well coupled, and usually exhibits good bone and extreme refine-



FIG. 47.—Hackney characteristics.

ment. The height, exclusive of ponies and intermediate types, ranges from 15-2 to 15-3 hands, and the weight from 1100 to 1300 pounds. The color of the Hackney varies. Chestnuts, bays, and browns are the leading colors, the former predominating; white markings all around are quite characteristic. The Hackney breed is typical of the attributes desired in heavy harness animals, possessing the refinement, the smooth-turned form, unusual style and well-balanced hock and knee action, the former being especially developed.



Fig. 48.—Lead team—pure Orloff—representing coach type.

The breed as a whole is smaller but closer knit than either the French or German Coach. The contour and lines of the Hackney are well proportioned. The face is straight, the neck of medium length, well crested and the body and hindquarters deeply and smoothly muscled throughout, giving the smooth finish desired. The temperament is good, specimens of the breed being bold, active, and stylish in appearance. The disposition is docile, and the breed otherwise well mannered. The action of the Hackney is



FIG. 49.—Red Cloud—heavy harness, trotting bred.

characterized by extreme height and retarded speed because of the high action exhibited. The Hackney is regarded as having more of the true coach characteristics than other coach breed. The Hackney Stud Book does not discriminate between full-sized Hackneys and Ponies which are 14-2 hands or under in height. Many specimens of the breed are produced by mating mares with pony stallions or *vice versa*, resulting in undersized individuals which possess extreme cobby characteristics.

Cleveland Bay.—The Cleveland Bay is not a widely distributed breed, although deserving of consideration.



FIG. 50.—Park horse.

This is the largest of the coach breeds, the height ranging from 16 to 16-3 hands and the weight from 1200 to 1500 pounds. Because of the extreme size, and although classed as a coach breed, it is used for various kinds of work. Formerly the breed was used for general diligence purposes. Later crossing with the Thoroughbred reduced the size somewhat and added style and finish. The body of the Cleveland Bay is rather large, the shoulders sloping, the back short, and the body deep. The head is somewhat lacking in refinement and not as much quality is exhibited



FIG. 51.—Coach horses.

generally as is desirable. The action is not characteristic of heavy harness breeds but rather strong and powerful in execution.

The color of the Cleveland Bay is either light or dark bay, as the name indicates. The legs, mane, and tail are usually black. White is permissible only to a very limited extent, there frequently being a small star in the forehead. The temperament is not characteristic of the typical coach breeds. This is indicated in the more drafty form, weight, and lack of style, finish, and action. The disposition of the breed is only fair. It is important in this country only from an



FIG. 52.—Runabout horse.

authoritive standpoint, very few specimens having been introduced.

Class Characteristics.—The heavy harness group includes coach, park, cob, cab and runabout, the latter being intermediate between the heavy and light harness groups.

Coach Horse.—The coach horse should have quality, style, smoothness, and action. The weight usually ranges from 1150 to 1250 pounds and the height is approximately 16 hands. Coach horses are driven to various vehicles and should go about 8 miles per hour. The specific use to which they are put requires a lively temperament, good disposition and faultless manners. They are used largely in cities where style should be manifested, both at the walk, trot, and when at rest.

Park Horse.—Park horses are classified by height. They should possess unusual style, symmetry, refinement and action as they represent the extreme show type. They are driven singly, in pairs, and in fours to various types of vehicles.

Cob.—Cob horses are very close, full-made animals with extreme finish and high action. They should possess superior quality, fine, clean bone, unusual muscular development, and comparatively short legs. They are intermediate between the heavy harness and pony groups.

Cab Horse.—Cab horses are of much the same type as the coach horse, many of them being the lower grades of the coach class. They should possess symmetry of form, good bone and feet, a close coupling, and unusual constitution and endurance. These horses are used for a cheaper trade than coach horses and are usually not maintained in as high condition.

Runabout.—The runabout horse is intermediate between the light and heavy harness groups. It should approximate 15 hands high and have both the characteristics of the road horse and the park horse, the speed of the former and the style and action of the latter, although not to the extreme. The name indicates the kind of service for which the runabout horse is used.

SCORE CARD FOR HEAVY HARNESS HORSES.

GENERAL APPEARANCE—12 Points.

Perfect score.

<i>Height:</i>	
<i>Weight:</i>	
<i>Form:</i> close, full made, smooth turned, symmetrical . . .	4
<i>Quality:</i> bone clean, dense, fine, yet indicating substance; tendons and joints sharply defined; hide and hair fine; general refinement, finish . . .	4
<i>Temperament:</i> proud, bold, stylish, disposition good, intelligent . . .	4

HEAD AND NECK—7 Points.

<i>Head:</i> size and dimensions in proportion, clear-cut features, straight face line, wide angle in lower jaw . . .	1
<i>Forehead:</i> broad, full . . .	1
<i>Eyes:</i> prominent orbit, large, full, bright, clear, lid thin, even curvature . . .	1
<i>Ears:</i> medium size, fine, pointed, set close, carried alert . .	1
<i>Muzzle:</i> fine, nostrils large, lips thin, trim, even . . .	1
<i>Neck:</i> long, lofty carriage, high crest, throttle well cut out, head well set on . . .	2

FOREHAND—22 Points.

<i>Shoulders:</i> long, oblique, smooth . . .	2
<i>Arms:</i> short, muscular, carried well forward . . .	1
<i>Forearms:</i> broad, muscular . . .	1
<i>Knees:</i> straight, wide, deep, strongly supported . . .	2
<i>Canons:</i> short, broad, flat, tendons sharply defined, set well back . . .	2
<i>Fellocks:</i> wide, tendons well back, straight, well supported .	2
<i>Pasterns:</i> long, oblique (45 degrees), smooth, strong . . .	2
<i>Feet:</i> large, round, uniform, straight, slope of wall parallel to slope of pastern, sole concave, bars strong, frog large, elastic, heels wide, full, one-third height of toe, horn dense, smooth, dark color . . .	6
<i>Legs:</i> direction viewed from in front, perpendicular line dropped from the point of the shoulder should divide the leg and foot into two lateral halves; viewed from the side, a perpendicular line dropped from the tuberosity of the scapula should pass through the center of the elbow-joint and meet the ground at the center of the foot . . .	4

BODY—11 Points.

<i>Withers:</i> well set up, narrow, extending well back . . .	2
<i>Chest:</i> wide, deep . . .	2
<i>Ribs:</i> well sprung, long, close . . .	2
<i>Back:</i> short, straight, strong, broad . . .	2
<i>Loin:</i> short, broad, strongly coupled . . .	2
<i>Flank:</i> deep, full, long, low underline . . .	1

Carried forward 52

	Perfect score.
Brought forward	52
HINDQUARTERS—32 Points.	
<i>Hips:</i> broad, round, smooth	2
<i>Croup:</i> long, level, round, smooth	2
<i>Tail:</i> set high, well carried	2
<i>Thighs:</i> full, muscular	2
<i>Stifles:</i> broad, full, muscular	2
<i>Gaskins:</i> broad, muscular	2
<i>Hocks:</i> straight, wide, point prominent, deep, clean cut, smooth, well supported	6
<i>Canons:</i> short, broad, flat, tendons sharply defined, set well back	2
<i>Fetlocks:</i> wide, tendons well back, straight, well supported	2
<i>Pasterns:</i> long, oblique (50 degrees), smooth, strong	2
<i>Feet:</i> large, round (slightly less than in front), uniform, straight, slope of wall parallel to slope of pastern, sole concave, bars strong, frog large and elastic, heels wide, full one-third height of toe, horn dense, smooth, dark color	4
<i>Legs:</i> direction viewed from the rear, a perpendicular line dropped from the point of the buttock should divide the leg and foot into lateral halves; viewed from the side this same line should touch the point of the hock and meet the ground some little distance back of the heel. A perpendicular line dropped from the hip-joint should meet the ground near the center of the foot	4
ACTION—16 Points.	
<i>Walk:</i> straight, snappy, springy, proud, stylish	6
<i>Trot:</i> in line, bold, flashy, extreme flexion of knees and hocks, balanced, regular	10
	100

LIGHT HARNESS GROUP OR TYPE.

The light harness group or type is represented by two rather distinct classes known as the speed or race horse, and the roadster. While these classes are distinctly different, they are both characterized by certain well-defined attributes or qualifications.

Conformation.—Speed and roadster attainments in light harness horses are the chief requisites to be considered in judging these animals. These attainments are depicted in the height, weight, structural conformation, quality, tem-

perament, and finish. The form of the light harness horse should show all indications of speed and roadster qualifications, yet maintain the desired style, endurance and finish to a degree depending on the use made of the animal. This necessitates an animal with a more rangy, yet reasonably close-made form than in the heavy harness group or type. The head should be medium in size, broad between the eyes and clearly defined, showing ample intelligence, as this is very much desired in horses



FIG. 53.—The light harness type.

used for light harness purposes. The shoulders should be long and oblique, the back short, the underline long, the animal closely coupled, but with more depth of body in comparison to width, than in the heavy harness group. A close, full-made form impedes free action and the ability to walk and trot at well-balanced, uniform gaits. While the walk is an important gait, a large amount of the work of the light harness group is performed at the trot, and this gait therefore should be given chief consideration, except in animals which are specially characterized by the pacing gait.

In contradistinction to the heavy harness group, light harness horses, as the name suggests, possess less weight, a more rangy and upstanding body, a deeper body in proportion to the width, longer and thinner muscles, more reach in the stride, and all-around lower going action. This group should be characterized by just the reverse of the heavy harness type, which is characterized by high action with a degree of flexion, depending on the particular class under consideration.

Quality.—Quality is an essential characteristic in animals which perform under severe strain. This is particularly true of the light harness horse which may be subjected to moderate road driving or to the severest trials on the track. Quality is indicated by a clearly defined head, fine, dense bone, with no inclination to meatiness, smooth, well-made joints, fine, silky hair, and in general, a finish indicative of hard, wearing qualities. Undefined features, open, spongy bone, characterized by meatiness, rough, open joints and lack of symmetry and finish indicate just the reverse of what is wanted in speed and endurance requirements. Animals of this group should look and appear as possessing the hard, enduring usage which is required of them.

Durability.—Durability is an attribute which is usually associated with an animal possessing the quality attainments formerly described. As the term indicates, every part of the conformation should be of such quality and so constructed in the blending of the finished animal that it emphasizes the possession of durability attributes to the very depth or nucleus of the structure. A strong constitution is indicated in a large, well-defined muzzle, large nostrils, large, bright, prominent eyes, and a broad, and unusually deep chest. These qualities are directly associated with durability.

Temperament.—The temperament of the light harness group should be highly developed and active, thus directly opposed to the temperament which characterizes the draft group. Hard, wearing qualities are directly associated with the strong nerve force exhibited in the characteristic light harness horse.

Breed and Class Characteristics.—The light harness group is represented by the American Standardbred, which is the nearest exponent of pure breeding, as grouped under the breeds in the classification of horses, and by the speed or race horse and roadster, as grouped under class characteristics. The former is subdivided, merely by a distinction in the gaits, into the trotter and pacer.



FIG. 54.—Standardbred mare.

American Standardbred.—The American Standardbred, as an exponent of pure breeding,¹ is represented by the trotter and pacer. This subdivision in conjunction with the top crossing with the Thoroughbred, which has been introduced in the Standardbred, is responsible for the wide variation which exists in the type. The color is not uniform, a large number of colors prevailing in various allied shades, bay being the predominating color. The height ranges from

¹See Official Trotting and Pacing Standard, page 153.

15-1 to 16 hands, and the weight from 800 to 1100 pounds or over in animals possessing the smoother road horse characteristics, although there are many smaller types possessing more or less value, depending on the use made of the animal. In the best development of this breed, specimens possess good quality, conformation, and refinement. Such specimens should possess clean, well-defined heads, a neck

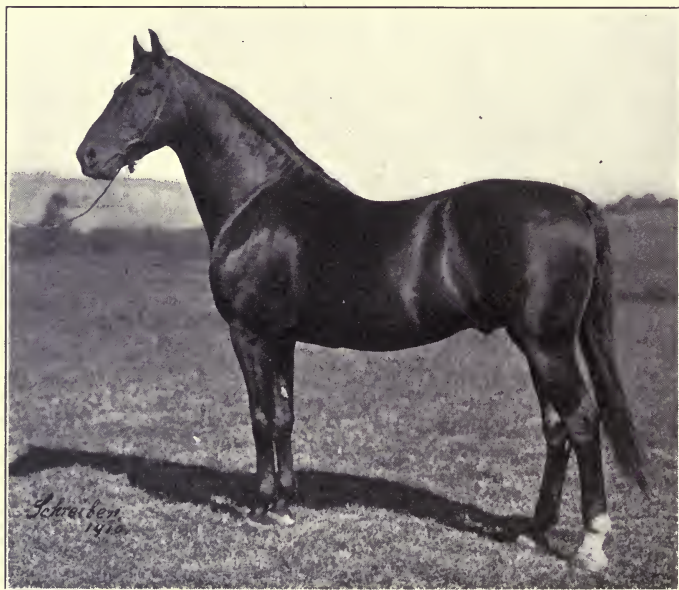


FIG. 55.—Morgan horse.¹

of medium length, refined, and moderately arched, sloping, well-made shoulders, a strong back, broad loin, muscular croup, strong coupling, clean, well-defined bone, and general symmetry and finish.

Horses of this latter stamp are more largely used for road purposes, as defined under the roadster class. Top crossing with Standardbred stallions of this stamp is practised widely

¹ The U. S. Government has important work under way with this horse at Middlebury, Vermont.

in breeding grade roadster horses possessing the quality, conformation, endurance, and finish of the smoother made representatives of the breed. The style and temperament of such animals is usually good, possessing sufficient spirit and snap to render them most acceptable for light harness service, as equipped for road work. Taken as a whole, the Standardbred, from the breed standpoint, varies greatly in type, size, color, and performance. This of necessity requires a special treatise on the various types represented by the general type to understand the breed thoroughly.

Official Standard of the American Trotting Register Association—Trotting Standard.—When an animal meets these requirements and is duly registered it shall be accepted as a Standardbred trotter:

1. The progeny of a registered standard trotting horse and a registered standard trotting mare.

2. A stallion sired by a registered standard trotting horse, provided his dam and grand dam were sired by registered standard trotting horses, and he himself has a trotting record of 2:30 and is the sire of three trotters with records of 2:30 from different mares.

3. A mare whose sire is a registered standard trotting horse, and whose dam and grand dam were sired by registered standard trotting horses, provided she herself has a trotting record of 2:30 or is the dam of one trotter with a record of 2:30.

4. A mare sired by a registered standard trotting horse, provided she is the dam of two trotters with records of 2:30.

5. A mare sired by a registered standard trotting horse, provided her first, second, and third dams are each sired by a registered standard trotting horse.

Pacing Standard.—When an animal meets these requirements and is duly registered, it shall be accepted as a Standardbred pacer:

1. The progeny of a registered standard pacing horse and a registered standard pacing mare.

2. A stallion sired by a registered standard pacing horse, provided his dam and grand dam were sired by registered standard pacing horses, and he himself has a pacing record

of 2:25, and is the sire of three pacers with records of 2:25, from different mares.

3. A mare whose sire is a registered standard pacing horse and whose dam and grand dam were sired by registered standard pacing horses, provided she herself has a pacing record of 2:25, or is the dam of one pacer with a record of 2:25.

4. A mare sired by a registered standard pacing horse, provided she is the dam of two pacers with records of 2:25.

5. A mare sired by a registered standard pacing horse, provided her first, second, and third dams are each sired by a registered standard pacing horse.

6. The progeny of a registered standard trotting horse out of a registered standard pacing mare, or a registered standard pacing horse out of a registered standard trotting mare.

Class Characteristics.—The light harness type is represented by the speed or race horse and the roadster, differing in the following attributes:

Speed or Race Horse.—The speed or race horse has two distinct gaits, namely, the trot and pace, the former being a diagonal two-beat gait and the latter a lateral two-beat gait. The chief distinction is in the action. However, there are certain points in the conformation which makes the speed horse naturally trot or pace. By the use of mechanical appliances or under proper training otherwise, a trotter may be trained to pace or *vice versa*. The speed horse should have ample enduring qualities for the severest test on the race course. Speed is the first requirement and, consequently, conformation is not given the usual amount of consideration. While a great many speed horses have the conformation of the smoother road horse type, it is only by direct association and natural inclination that such animals become noted speed performers. Pacers, as distinguished from trotters, are frequently prominent at the withers, usually higher and more sloping in the croup, in general showing a less symmetrical development than the trotting animal.

Roadster.—The roadster animal should possess a smooth, well-finished conformation with the approved symmetry and finish characteristic of the smooth-turned Standardbred indi-

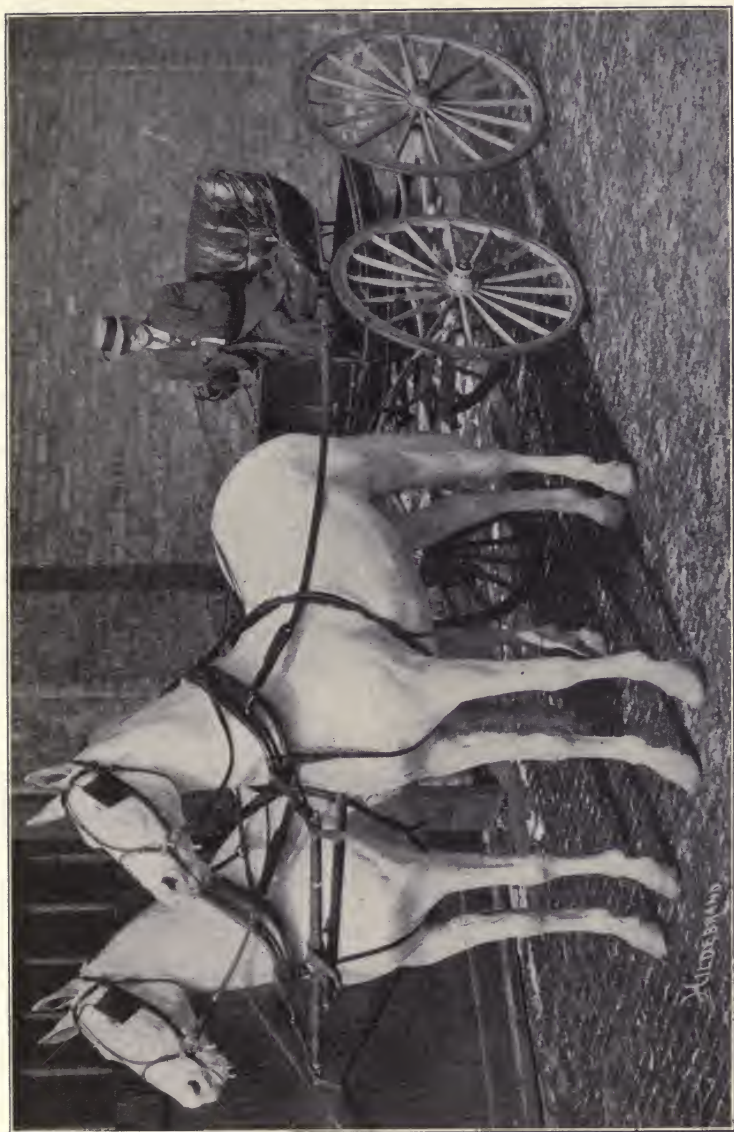


FIG. 56.—Road team hitched to Concord wagon.

vidual. Specimens should possess in addition regular, well-balanced action for drawing a light vehicle at a rapid rate when necessary. Pacers are not usually recognized as the most acceptable in this class. They require a smooth surface for their best performance, and because of this they are not widely adapted to general road purposes.



FIG. 57.—Roadster team.

SCORE CARD FOR LIGHT HARNESS HORSES.

Perfect score.

GENERAL APPEARANCE—12 Points.

<i>Height:</i>	
<i>Weight:</i>	
<i>Form:</i> symmetrical, smooth, stylish	4
<i>Quality:</i> bone clean, firm, and indicating sufficient substance; tendons defined; hair and skin fine	4
<i>Temperament:</i> active, kind disposition	4

HEAD AND NECK—6 Points.

<i>Head:</i> lean, straight	1
<i>Muzzle:</i> fine, nostrils large; lips thin, even, teeth sound	1
<i>Eyes:</i> full, bright, clear, large	1
<i>Forehead:</i> broad, full	1
<i>Ears:</i> medium size, pointed, well carried, and not far apart	1
<i>Neck:</i> muscled; crest high; throat-latch, fine; windpipe large	1

Carried forward 18

Perfect score.

Brought forward 18

FOREHAND—23 Points.

<i>Shoulders:</i> long, smooth with muscle, oblique, extending into back	2
<i>Arms:</i> short, thrown forward	1
<i>Forearms:</i> muscled, long, wide	2
<i>Knees:</i> clean, wide, straight, deep, strongly supported	2
<i>Canons:</i> short, wide; sinews, large, set back	2
<i>Fetlocks:</i> wide, straight	1
<i>Pasterns:</i> strong, angle with ground 45 degrees	3
<i>Feet:</i> medium, even size, straight; horn dense; frog large, elastic; bars strong; sole concave; heel wide	6
<i>Legs:</i> viewed in front, a perpendicular line from the point of the shoulder should fall upon the center of the knee, canon, pastern, and foot. From the side, a perpendicular line dropping from the center of the elbow-joint should meet the ground at the center of the foot, fall upon the center of the knee and pastern joints and back of hoof.	4

BODY—10 Points.

<i>Withers:</i> muscled and well finished at top	1
<i>Chest:</i> deep, low, large girth	2
<i>Ribs:</i> long, sprung, close	2
<i>Back:</i> straight, short, broad, muscled	2
<i>Loin:</i> wide, short, thick	2
<i>Underline:</i> long; flank let down	1

HINDQUARTERS—29 Points.

<i>Hips:</i> smooth, wide, level	2
<i>Croup:</i> long, wide, muscular	2
<i>Tail:</i> attached high, well carried	1
<i>Thighs:</i> long, muscular, spread, open angled	2
<i>Quarters:</i> heavily muscled, deep	2
<i>Gaskin or Lower Thighs:</i> long, wide, muscular	2
<i>Hocks:</i> clearly defined, wide, straight	5
<i>Canons:</i> short, wide; sinews, large, set back	2
<i>Fetlocks:</i> wide, straight	1
<i>Pasterns:</i> strong, sloping	2
<i>Feet:</i> medium, even size; straight; horn dense, frog large, elastic; bars strong; sole concave; heel wide, high	4
<i>Legs:</i> viewed from behind; a perpendicular line from the point of the buttock should fall upon the center of the hock, canon, pastern, and foot. From the side, a perpendicular line from the hip joint should fall upon the center of the foot and divide the gaskin in the middle; and a perpendicular line from the point of the buttock should run parallel with the line of the canon	4

ACTION—20 Points.

<i>Walk:</i> elastic, quick, balanced	5
<i>Trot:</i> rapid, straight, regular, moderately high	15

Total 100

SADDLE GROUP OR TYPE.

The saddle group or type is represented from the purebred standpoint in the American Saddle Horse and the Thoroughbred running horse. The group is further exemplified in the following classes, which include the combination horse, possessing both light harness and saddle attributes,



FIG. 58.—The saddle type.

the walk-trot-canter horse, the gaited horse, the hunter, cavalry, and race horse or runner.

American Saddle Horse.—The American Saddle Horse is an American product, as the name suggests. It is the result of using Thoroughbred blood with mares which had the inclination to amble, this forming the foundation for the saddle horse gaits. The general form of the saddle horse does not differ materially from the Standardbred roadster, possessing the superior, close-knit conformation. The height of the

American Saddle Horse varies on the average from 15-1 to 15-3 hands, and ranges in weight from 950 to 1050 pounds. Specimens of the well-bred saddle horse usually exhibit extreme style, the body being very close and neatly turned. The shoulders and pasterns should be oblique, yet strong enough to endure the work for which they are used. The predominating colors are bay, brown, chestnut, and black, usually being marked with one or more white points. The best types of the American Saddle Horse are exemplified in beauty, symmetry, and finish. They are well proportioned, the lines clearly defined, the countenance intelligent, and the head and neck usually possessing a most characteristic, lofty, graceful, carriage, or position. The especially marked carriage of the head and neck, the sloping shoulders and pasterns, the smooth, round-turned body and the long, level croup with high set and gracefully carried tail are characteristics which are not only desired but usually possessed in superior specimens of the breed. The American Saddle Horse is typified by five characteristic gaits, namely: the walk, trot, canter, rack and the running walk, fox trot, or slow pace.

The American Saddle Horse Association defines the American Saddle Horse from the show ring standpoint in the following: The saddle horse must be sound, of good conformation, substance, finish, style, and shown without artificial appliances, and up to carrying at least one hundred and sixty (160) pounds.

The three-gaited horse should go plain, walk briskly, and with speed equal to four (4) miles an hour; canter reasonably, high and gentle, trot steady, straight, and true; action enough to be attractive; well balanced, and with speed equal to twelve (12) miles an hour.

Added to the foregoing the five-gaited horse should go running walk, fox trot or slow pace, smoothly and equal to six (6) miles an hour; rack easily without being forced, with speed equal to twelve (12) miles an hour. Must stand quietly, back readily, and lead with either foot in a canter from a halt. (Not required or desired to change lead in action.)

High rate of speed and racing is forbidden.

High school gaits are not saddle gaits. It is understood that an animal which has been educated in high school may inadvertently show a step or two in this school when changing gait. Such evidence is not to disqualify a horse, though it is objectionable, but any intentional exhibition of high school is prohibited and shall disqualify an entry.

The three-gaited horse should show the three distinct gaits: walk, trot, and canter.

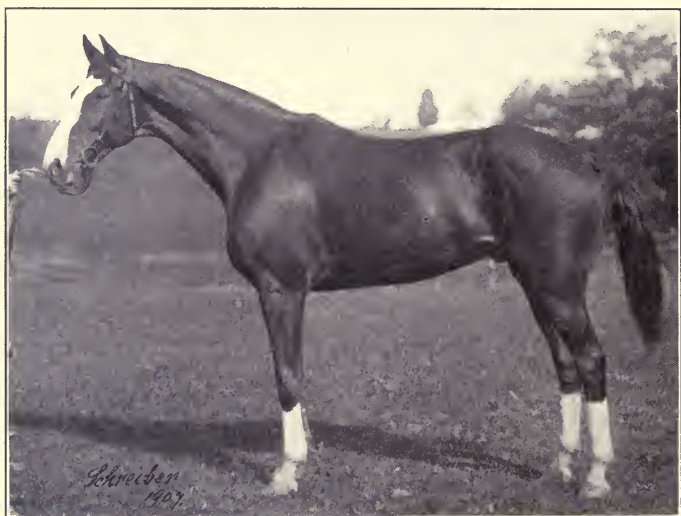


FIG. 59.—Thoroughbred stallion.

Thoroughbred.—The Thoroughbred horse is derived from the amalgamation of the Arabian Barb and Turkish Blood with the lighter English-bred horses. From this union has been developed a breed of unusual speed and endurance. The acme of perfection in the Thoroughbred horse is the attainment of speed at the run. In gaining this one special attribute the type is often unsymmetrical or at least not as pleasing in its lines as the roadster type of Standardbred or the American Saddle Horse. The breed is characterized by an energetic, racy temperament or nerve force, which

is exemplified in the extreme speed attained by specimens of the breed. Although unusually refined and possessing striking quality characteristics, the Thoroughbred is rangy, with a long body, long legs, and comparatively long neck. These are all conducive to a long stride, which is so necessary in the running horse. The best representatives of the breed



FIG. 60.—Combination horse.

average about 15-2 hands high and range from 900 to 1050 pounds.

The color is bay, chestnut, brown, black, and gray with white markings. The former colors are the most characteristic, blacks and grays not being in demand. Compared with the Standardbred trotter and pacer, the Thoroughbred is more rangy, having more sloping pasterns, finer bone, sometimes extreme and smaller feet of unusually fine texture. The withers are usually high, the shoulders are rather long

and sloping, and the head carried forward rather than upward. The hindquarters are long, strongly muscled, and the gaskins broad, with a strong junction at the hock. Because of the special purpose for which the Thoroughbred has been developed, it is used almost solely for breeding and racing purposes in its pure-bred form, the temperament being



FIG. 61.—Walk-trot-canter saddle mare.

too nervous and erratic for general use. Pure specimens of the breed are used otherwise for crossing to obtain various classes of horses, such as the walk-trot-canter, hunter, and cavalry horse.

Combination Horse.—The combination horse possesses both saddle and light harness attainments. However, such animals are often better naturally developed or trained for one purpose than the other. The combination horse is

more representative of the saddle type, but is customarily shown in harness first. It should possess considerable smoothness, style and finish, although these attributes are not usually attained to an extreme. The combination horse is usually distinguished from the saddle horse by possessing more of the harness-form attainments, principally in the

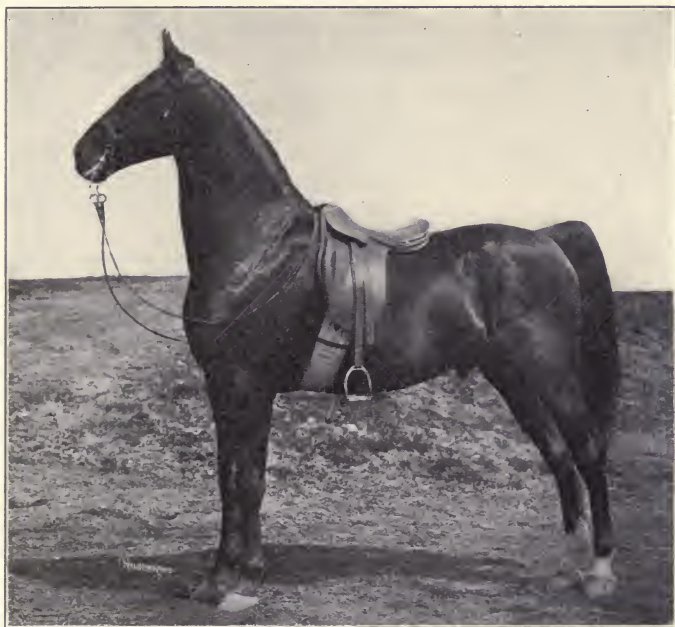


FIG. 62.—Gaited saddle stallion.

speed at the trot. Combination horses which possess, either naturally or by training, an equal balance in harness and saddle requirements possess unusual value, both from the market and show ring standpoint.

Walk-trot-canter Horse.—The walk-trot-canter horse receives its name from the three gaits which it possesses. It is divided into two types which are derivatives of the American or Saddle-bred and the English or Thoroughbred

horses. The American or Saddle-bred type is a complement to the gaited saddle horse, except that it is trained only to go the three gaits. It is customary also to dock and pull the manes. The Thoroughbred type is represented in the better shaped Thoroughbreds which possess the three distinctive gaits, the walk, trot, and canter, in a distinctive form.



FIG. 63.—Five-gaited saddler.

This type of three-gaited horse is usually undocked and the mane hogged.

Gaited Saddle Horse.—The gaited saddle horse is exemplified in the five-gait attainments, namely: the walk, trot, canter, rack and running walk, fox trot or slow pace. Many of the gaited saddle horses are of pure-bred saddle-horse origin, although those of grade origin having the standard five-gait requirements are so classified.

Hunter Horse.—The hunter horse, as the name suggests, should possess saddle requirements, capacity and endurance, for carrying weight and jumping easily and safely. He should possess a good disposition, ample quality, and refinement, and a strong, lively, nervous temperament. Intelligence



FIG. 64.—Light-weight hunter.

is important, because of the varied attainments which such an animal must possess. Hunters are classified as light, medium, and heavy, on a basis of the weight which they are capable of carrying safely. This ranges from 135 to 190 pounds or over. They should possess capacity for carrying the rider safely and for long, continuous cross-country runs over the various obstacles which are usually encountered.

Cavalry.—Cavalry horses are used, as the name suggests, for army purposes. While many of them are range bred

and do not possess a desirable conformation, there are certain standard qualifications set forth by the Quartermaster-General of the war department. Specimens of this class should be geldings of good color, from four to eight years old, stand from 15 to 15-3 hands high, and weigh from 950 to 1100 pounds. They should be sound, good in quality,



FIG. 65.—Hunter, Irish Rose.

possess a docile disposition, be well broken to saddle, have a well-balanced action, and be free from blemish or other defects.

SPECIFICATIONS FOR CAVALRY HORSES, PREPARED UNDER DIRECTION
OF THE QUARTERMASTER-GENERAL.

The cavalry horse must be sound, well bred, of a superior class, and have quality; gentle and of a kind disposition; thoroughly broken to the saddle, with light and elastic mouth, easy gaits, and free and prompt action at the walk, trot, and gallop; free from vicious habits, without material blemish or defect; and otherwise to conform to the following description:

A gelding of uniform and hardy color, in good condition; from four to eight years old; weighing from 950 to 1100 pounds, depending on height, which should be from 15 to 15-3 hands.

Head.—Small and well set on neck; with ears small, thin, neat and erect; forehead broad and full; eyes large, prominent, and mild, with well-developed brow and fine eyelid; vision perfect in every respect; muzzle small and fine; mouth deep; lips thin and firmly compressed; nostrils large and fine, and branches of underjaw (adjoining neck) wide apart.

Neck.—Light, moderately long, and tapering toward the head, with crest firm and longer than underside; mane fine and intact.

Withers.—Elevated, not unduly fine, well developed and muscled.

Shoulders.—Long, oblique, and well muscled.

Chest.—Full, very deep, moderately broad, and plump in front.



FIG. 66.—High jumper.

Forelegs.—Vertical, and properly placed; with elbow large, long, prominent, and clear of chest; forearm large at the elbow, long and heavily muscled.

Knees.—Neatly outlined, large, prominent, wide in front, well situated, and well directed.

Back.—Short, straight, and well muscled.

Loins.—Broad, straight, very short, and muscular.

Barrel.—Large, increasing in size toward the flanks, with ribs well arched and definitely separated.

Hindquarters.—Wide, thick, very long, full, heavily muscled, rounded externally, and well directed.

Tail.—Fine and intact, well carried and firm.

Hocks.—Neatly outlined, lean, large, wide from front to rear, well situated, and well directed.

Limbs.—From knees and hocks downward vertical, short, wide laterally, with tendons and ligaments standing well out from bone and distinctly defined.

Pasterns.—Strong medium length, not too oblique, and well directed.

Feet.—Medium size, circular in shape, sound; with horn dark, smooth, and of fine texture; sole moderately concave, and frog well developed, sound, firm, large, elastic, and healthy.

Each horse will be subjected to a rigid inspection, and any animal that does not meet the above requirements should be rejected.



FIG. 67.—Cavalry remount.

Running Horse.—The race horse is exemplified by the extreme speed which it is able to obtain at its natural gait, which is the gallop. It should have long reach and unusual stamina and endurance. The race type is an exponent of the Thoroughbred formerly described, gaining prominence either in the pure-bred or grade form. The attributes and attainments specified under the Thorough-

bred are the same as those expected in the race-horse class. Speed at the run is the one requirement which is either in the straight running race or the steeplechase course.

SCORE CARD FOR SADDLE HORSES.

Perfect score.

GENERAL APPEARANCE—12 Points.

*Height:**Weight:*

Form: close but not full made, deep but not broad, symmetrical 4

Quality: bone clean, dense, fine, yet indicating substance, tendons and joints sharply defined, hide and hair fine, general refinement, finish 4

Temperament: active, disposition good, intelligent 4

HEAD AND NECK—8 Points.

Head: size and dimensions in proportion, clear-cut features, straight face line, wide angle in lower jaw 1

Forehead: broad, full 1

Eyes: prominent orbit, large, full, bright, clear, lid thin, even curvature 1

Ears: medium size, pointed, set close, carried alert 1

Muzzle: fine, nostrils large, lips thin, trim, even 1

Neck: long, supple, well crested, not carried too high, throttle well cut out, head well set on 3

FOREHAND—22 Points.

Shoulders: very long, sloping yet muscular 3

Arms: short, muscular, carried well forward 1

Forearms: long, broad, muscular 1

Knees: straight, wide, deep, strongly supported 2

Canons: short, broad, flat, tendons sharply defined, set well back 2

Fetlocks: wide, tendons well back, straight, well supported 2

Pasterns: long, oblique (45 degrees), smooth, strong 2

Feet: large, round, uniform, straight, slope of wall parallel to slope of pastern, sole concave, bars strong, frog large, elastic, heels wide, full, one-third height of toe, horn dense, smooth, dark color 5

Legs: direction viewed from in front, perpendicular line dropped from the point of the shoulder should divide the leg and foot into two lateral halves; viewed from the side, a perpendicular line dropped from the tuberosity of the scapula should pass through the center of the elbow-joint and meet the ground at the center of the foot 4

BODY—12 Points.

Withers: high, muscular, well finished at top, extending well into back 3

Chest: medium width, deep 2

Ribs: well sprung, long, close 2

Back: short, straight, strong, broad 2

Loin: short, broad, muscular, strongly coupled 2

Flank: deep, full, long, low underline 1

Carried forward 54

	Perfect score.
Brought forward	54
HINDQUARTERS—31 Points.	
<i>Hips:</i> broad, round, smooth	2
<i>Croup:</i> long, level, round, smooth	2
<i>Tail:</i> set high, well carried	2
<i>Thighs:</i> full, muscular	2
<i>Stifles:</i> broad, full, muscular	2
<i>Gaskins:</i> broad, muscular	2
<i>Hocks:</i> straight, wide, point prominent, deep, clean cut, smooth, well supported	5
<i>Canons:</i> short, broad, flat, tendons sharply defined, set well back	2
<i>Fetlocks:</i> wide, tendons well back, straight, well supported	2
<i>Pasterns:</i> long, oblique (50 degrees), smooth, strong	2
<i>Feet:</i> large, round (slightly less than in front), uniform, straight, slope of wall parallel to slope of pastern, sole concave, bars strong, frog large and elastic, heels wide, full, one-third height of toe, horn dense, smooth, dark color	4
<i>Legs:</i> direction, viewed from the rear a perpendicular line dropped from the point of the buttock should divide the leg and foot into lateral halves; viewed from the side this same line should touch the point of the hock and meet the ground some little distance back of the heel. A perpendicular line dropped from the hip-joint should meet the ground near the center of the foot	4
ACTION—15 Points.	
<i>Walk:</i> rapid, flat-footed, in line	5
<i>Trot:</i> free, springy, square, going well off hocks, not extreme knee fold	5
<i>Canter:</i> slow, collected, either lead, no cross canter	5
Total	100

PONY GROUP OR TYPE.

The pony group or type is exemplified in the Shetland, Welsh, and Hackney, from the pure-bred standpoint, the latter being an undersized Hackney formerly described under the heavy harness group. From the standpoint of class attainments the type is represented by the Polo Pony, Shetland (under 46 inches), and the 11-2 to 14-2 hand pony.

Shetland.—The Shetland pony in all respects possesses the type and conformation of a small draft horse. The Shetland is the smallest of the breeds of horses. The American Shetland Pony Club requires that specimens of the breed come under 46 inches in order to be eligible for

registration. The breed is a native of the Shetland Islands where they are used frequently to carry rather heavy loads. They are used in this country largely for pleasure purposes, chiefly among children. The Shetland is docile, rather lymphatic in temperament, although occasionally ill natured.

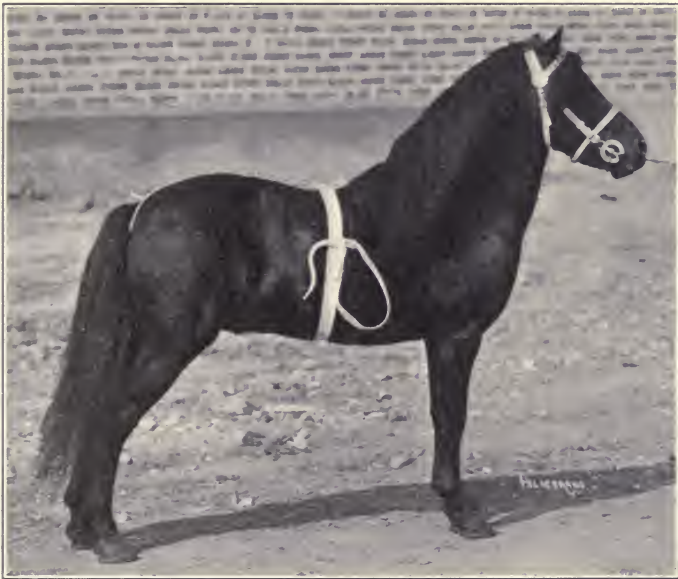


FIG. 68.—Shetland stallion.

The colors vary considerably, browns, blacks, bays, chestnuts, and often odd and irregular colors characterize the breed. The solid colors are most preferable among the breeders, although broken-colored ponies find ready sale, chiefly for the use of children. Action is not well developed as a usual thing. The American type of pony is less blocky and more refined than the type accepted in its native home.

SCORE CARD FOR SHETLAND PONIES.

Perfect score.

<i>Constitution:</i>	Constitution indicated by general healthy appearance, perfect respiration, brightness of eye	10
<i>Size:</i>	Ponies over four years old, 42 inches and under in height, two points to be deducted for every inch over 42 inches up to 46 inches, fractional portions to count as full inches	25
<i>Head:</i>	Head symmetrical, rather small and fine, wide between eyes, ears short and erect	10
<i>Body:</i>	Barrel well rounded, back short and level, deep chest, good breast, compact "pony build"	10
<i>Legs:</i>	Legs muscular, flat-boned, hindleg not cow-hocked or too crooked	25
<i>Mane and Tail:</i>	Foretop, mane and tail heavy	10
<i>Feet:</i>	Good	10
Total		100

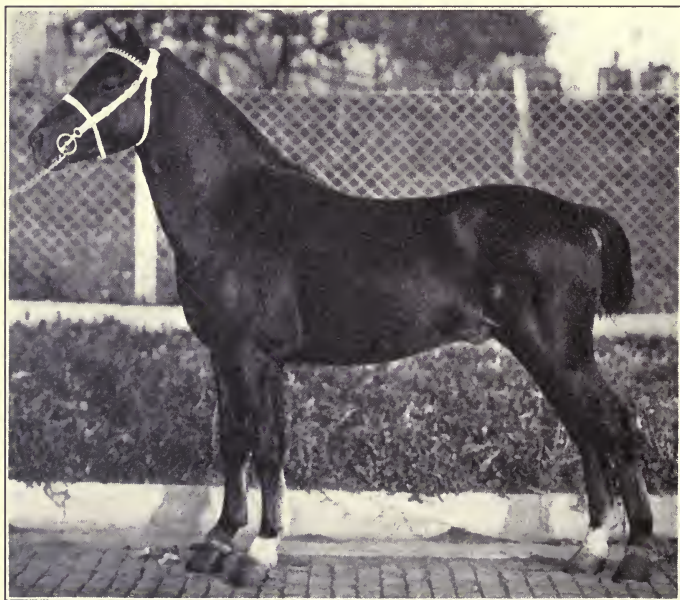


FIG. 69.—Welsh stallion.

Welsh Ponies.—Welsh ponies are descended from ponies which are native of the Welsh mountains in Wales. The type is quite variable, specimens of the breed having been

improved by the use of Arab and Thoroughbred blood. The Welsh Pony and Cob Society divides the breed into four types. The first consideration is height, including specimens ranging 12-2 hands or under, 12-2 to 13-2 hands, 13-2 to 14-2 hands, and 14-2 to 15-2 hands. The first type resembles a small Arabian horse, the second being more of the cob type,

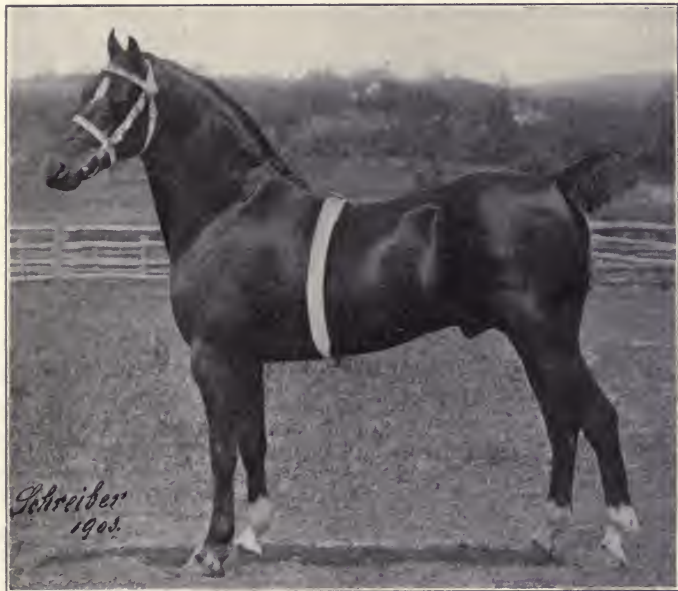


FIG. 70.—Hackney pony stallion.

while the third comes in the cob class. Those conforming to the latter height are suited to infantry and cavalry service. Welsh ponies possess more style and action than the Shetland, the larger, better developed specimens making good saddle or harness horses. The color ranges quite widely, bays, browns, chestnuts, grays, and roans characterizing the breed. Many of these ponies have good hock and knee action and unusual speed and stamina for a pony. However, there are very many ill-developed specimens, little care and atten-

tion having been given to their breeding, especially under native conditions.

Hackney.—The Hackney pony is merely an undersized Hackney horse conforming to pony requirements with a maximum height of 58 inches or 14-2 hands. All of the breed qualities, as formerly described, should be exhibited in the Hackney pony.

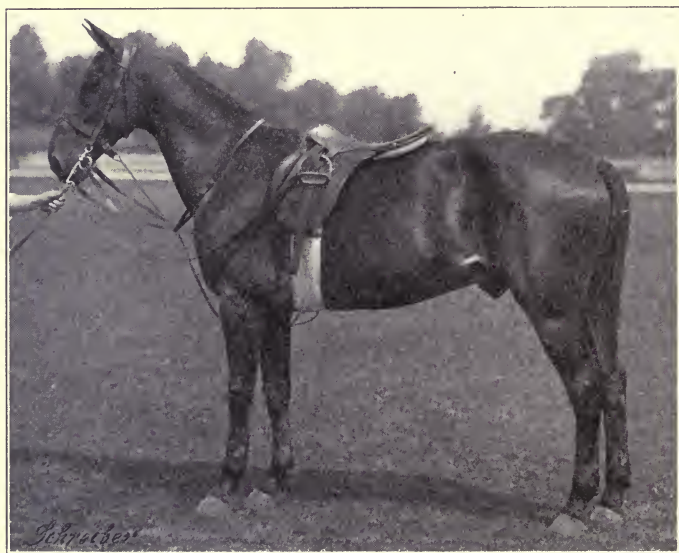


FIG. 71.—Polo pony. •

Class Characteristics.—The principal characteristics of ponies are described under the following:

Polo Ponies.—The Polo pony, although referred to sometime as a breed, does not possess true breed qualifications. The maximum height allowed by the American Polo Pony Association is 14-2 hands. The Polo pony may be a derivative of small Thoroughbreds, western ponies, or half-breds. They are of a hunter type, must possess a good disposition, a lively temperament, good quality and endurance in order

to meet the requirements of the game. Endurance and intelligence are associated qualities which are very important in the most typical representatives of the class.



FIG. 72.—Pony turnout.



FIG. 73.—Thirteen-hand Hackney ponies.

Ponies, 46 Inches or Under.—Ponies conforming to this requirement are largely Shetland and Welsh ponies and their derivatives. All of the individual requirements formerly described under Shetland and Welsh ponies should characterize the class.

Ponies between 11-2 Hands and 14-2 Hands.—This is a class of ponies of heavy harness or saddle-horse breeding with miniature size. They are used principally for children for purposes where the Shetland and Welsh do not conform well to the requirements. Good solid colors are most desirable, having in this respect more of the qualifications of the mature horse and less of the Shetland pony color attributes.

JUDGING BREEDING CLASSES.¹

In judging breeding classes, there are certain factors of special significance not considered under the requisites of draft and light-horse attributes. These problems involve conformation, temperament, sex characteristics, and the factors of special significance in judging young stock.

Breeding Attributes.—The judging of horses for breeding purposes is not radically different from judging such animals from a strictly draft or light-horse standpoint, barring reproductive characteristics. The principal factors to consider, aside from those already discussed, are healthfulness, constitution, and breeding conformation. Temperament is important. Special emphasis should always be given to the healthfulness, constitution, and form in judging breeding classes. The type of animal which will make a durable and otherwise satisfactory draft or light horse will not always be a satisfactory breeder. The draft horse proper should be compact in form, short, and closely coupled. Such an animal would not of necessity make a strong, vigorous breeder, although these characteristics are all important. Capacity should be closely associated with these points.

The breeding animal should be long in the body, deep, broad and roomy. While compactness or fulness of form is highly desirable, this should not be obtained at the expense of breeding capacity. Breeding requisites are in all essential factors the same as draft form. It is of special importance, however, that the larger, more capacious form be associated with a strong constitution, and a large, strong, fine-qualified

¹ Applicable to draft and light horses.

bone. These two factors should be closely associated, as the future and continuous usefulness of the breeding animal are of primary importance. Quality and constitution or vigor should, therefore, be given special attention.

Quality.—The significance of quality and its influence on the individual is only a mere part of its manifestation as compared to its relation to the breeding animal. This is especially true in the horse where enduring qualities in a large measure determine the value in its special field of work and reproduction. The horse, above all animals is expected to show, along with other necessary attributes, an extreme degree of quality and general refinement. The degree of manifestation of necessity varies, depending upon the type of the animal and its specialized use. However, in the horse, quality above all considerations should be plainly in evidence. The work of the horse is based on some form of locomotion. No matter what the particular phase of use may be, quality is necessary, with other attributes, to endow the animal with the maximum amount of durability. While the attainment of this particular attribute should not overshadow either scale or substance, it must stand out boldly, yet be properly associated with the other elements of the mechanism. A thick, meaty, spongy-boned horse is not only objectionable in the individual, but the transmission of such characteristics to the offspring is doubly so. An animal so characterized can neither be a satisfactory breeder nor supply stock suitable for breeding, market, or show ring demands.

Conformation.—The conformation in the male and female vary to a noticeable degree. While on the whole the general form is just the same, there are certain characteristics which endow the male and female, respectively, with masculine and feminine attributes upon which the reproduction of highly developed individuals depend. The stallion should be bold and fearless in appearance, strong in the crest and through the shoulders and chest, yet not to the extent of rendering the individual unsymmetrical from any viewpoint. It should be characterized with all attainments significant of prepotency signifying the regular transmission of individually possessed qualities to the offspring.

The female should likewise possess the qualities indicative of strongly endowed maternal functions. The head and neck should be lighter and more feminine in appearance than in the male. The shoulders should be lighter and more harmoniously developed with the other body regions. As with all breeding animals, the body and hindquarters should be more strongly developed than the head, neck, and forehand. In the stallion this is exhibited in the heavier, coarser head, larger, thicker neck, heavier crest, shoulders, and chest. In contradistinction, the mare is less prominent in the development through this region and comparatively more so in the body and hindquarters. On the whole, the stallion should be more compact or close knit, this depending on the type, the mare having a more open conformation, which is a natural phenomenon in all well-developed breeding females.

Temperament.—The temperament of individual animals varies greatly. However, it is necessary that breeding animals have a uniform, active temperament characteristic of the various types to which they belong. Horses, especially, should have an even, uniform temperament and a lively, docile disposition. Usually the high-strung, easily excited animal is lacking in nerve force or capacity. This is detrimental to a breeding animal, as it not only detracts from the value of the individual but such characteristics are usually transmitted to the offspring in a like or greater degree.

Compared with the light horse, the draft horse is naturally somewhat more lymphatic in temperament. A light horse, which performs its work at a light vehicle, is supposed to show more life, or spirit, than the heavier type of animal. The temperament of any animal should be keen and active, yet it should not be unduly emphasized at the expense of the usefulness or purpose for which an animal is bred. The draft horse should show all desirable temperamental characteristics, yet in a modified degree as compared with the light horse. The draft animal which exhibits the same traits as a Standardbred or Thoroughbred would not be considered as thoroughly conforming to draft-horse characteristics. There

should be an exhibition of temperament, however, in conformity with type characteristics.

Sex Characteristics.—The primary differences between the stallion and the mare are those which relate to size, proportion, compactness, and sex characteristics. The stallion should be thoroughly masculine without any indications of femininity in the form, structure, or otherwise. The head should be large and while characterized by quality



FIG. 74.—Percheron stallion, showing the desired masculine qualities.

and clearness of outline, it should show without question the masculine characteristics. The neck should be long, broad, deep, and heavily muscled. The crest should also be well developed, any lack of development indicating weak constitution and a lack of prepotency. The body should portray every factor which characterizes a strong, vigorous individual. It should be in conformity with the development of the head, neck, and all other parts. The animal

should show a large, strong bone, deep muscling, and a compact, massive form throughout. The hindquarters should likewise be long, deep, and prominently developed. The first impression of the stallion should be that of boldness and strength, combined with symmetry of form, quality, constitution, and prepotency.

The major difference between the stallion and the mare is the size and the characteristics which relate to sex differences.

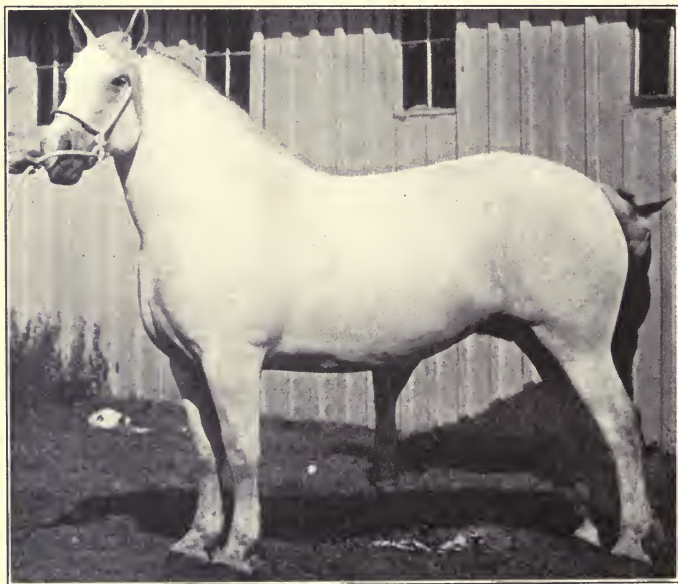


FIG. 75.—Percheron brood mare, showing femininity and breeding capacity.

The form of the mare should in general be the same as that of the stallion, differing in the fineness of the features and the feminine qualities exhibited. While the mare should be strongly muscled, there should not be the same degree of massiveness as found in the stallion. The head should be large, broad, clear cut in outline, and have the feminine characteristics clearly portrayed. The neck should be relatively longer than in the stallion, while there should not

be any undue indication of crest development. The body proper should be long, capacious, and deeply muscled, as such characteristics are indicative of maternal qualities. The bone should be large, clean and fine, yet the same degree of compactness should not be exhibited as in the stallion. Otherwise, the characteristics of the male and female are the same. The draft characteristics should be clearly in evidence in both male and female.



FIG. 76.—Young colts with an outcome. Indicated in the large bone, open, growthy frame, and general breedy appearance.

Colts and Fillies.—In judging colts and fillies there is always a certain amount of outcome or development which must be taken into consideration. While all animals must be judged in the show ring according to their immediate condition, yet in selecting for future breeding purposes, the final outcome must be given consideration. Usually

the large, strong-boned colt or filly does not make the most attractive appearance, yet such animals seldom fail to grow into the most valuable matured specimens. The sleek-bodied animal presenting the round, smooth, plump form is likely to catch the eye of the uninitiated, yet an animal of this type will rarely grow into a large, capacious breeder, or a strong, vigorous, market animal.

If the fundamental principles of animal development have been completely mastered, it will have been learned that the animal makes growth and development on the bony framework available for this purpose. If there is not sufficient surface for the animal to expand or grow it cannot possibly develop into a large, useful animal. The young animal which is characterized by a large framework possessing quality and other requisites will develop to the maximum degree of efficiency. It is impossible for the small-boned colt or filly to make development in a normal manner. It is the universal law of growth that the size or weight attained is dependent on the development of the bone and the amount of surface exposed for the reception of the muscles and other elements entering into the animal form or make-up.

CHAPTER IX.

JUDGING JACKS, JENNETS, AND MULES.

JACKS AND JENNETS.

Structure.—The general structure of the domestic ass is very much like the horse, although there are some features quite different. The essential differences are the lack of symmetry, quality, and finish. Otherwise, with a few exceptions, the qualifications are the same and the method of judging is identical. The head of the ass is usually large and often not well proportioned with the other parts of the body. The ears are large, long, and somewhat coarse. The neck is medium in length, deep, and does not usually possess a crest.

The body is moderately compact, deep, and reasonably smooth in outline. The ass, as a whole, does not possess the massiveness of the draft type of horse. Comparing it with the horse, it is narrower and lighter in the body, and especially lacking in the hindquarters, which are inclined to be short and not well muscled. The hair is longer than in the horse, somewhat coarser, and the mane and tail possess an unusually scanty supply.

The legs usually show strong bone, but the joints are quite frequently large and coarse. The feet are smaller and narrower than in the horse, both the legs and feet being less subject to unsoundness than in the latter animal. There are no callosities on the hindlegs of the ass. The age is determined in the same manner as in the horse.

General Appearance.—In general appearance, the ass does not possess the pleasing lines, the rotundity or symmetry of form or the massiveness of the horse. These are characteristics which are deeply fixed, however, and therefore

cannot be criticised absolutely. Considered from the utility standpoint, the general form and appearance of the ass is subject to much less criticism than when compared with the horse. Beauty and appearance are exemplified largely by the type of animal under consideration.

Form Scale and Quality.—Criticisms of the ass, other than the general differences ascribed in comparison with the horse, are the lack of shape, definition, and finely drawn features. The shoulders are not as sloping, the ribs usually not as well sprung, the hindquarters not as well developed or muscled, and there is not as much definition, quality, or refinement in the bones and joints. There is a general lack of smoothness and coördination of parts, although this is usually more apparent in the head, neck, and hindquarters.

The height and weight of the ass varies considerably, this depending on the breed and condition of the animal. In the more approved types, the height approximates 16 hands. In selecting a jack for breeding, consideration should be given to the mating which is to be made. If the jack is selected for mating with a mare, the height is not as important as when selected for mating with a jennet. A larger, rangier animal and one with more height is desirable for this purpose. The weight of necessity is determined largely by the height and type of the animal, the weight ranging from 900 to 1100 pounds in the better bred and more desirable types of the approved breeds.

The quality of the ass is determined in identically the same manner as in the horse, although there may be quite varying differences in the coördination of the structural development of the animal. In the horse lack of quality is usually general, while in the ass it is more frequently the result of a lack of coördination in structure, although it may be generally faulty, the same as in the horse.

Soundness and Condition.—The ass and the mule are proverbially less subject to unsoundness than the horse. This is due largely to the structure, especially of the feet and the use to which the animals are subjected. Condition is largely determined by the care and management given these animals.

Careless treatment usually develops a very objectionable condition in form, appearance, and the prevailing jack sores.

Color.—The several breeds of jacks have characteristic colors, the same as in the distinct breeds of horses. The jacks most in demand, however, are those possessing black or dark brown bodies with white or light points. Gray jacks are not desirable either for jennet or mule breeding. The darker colors, because of their more stable qualities under all conditions of crossing and market adaptability, are in much greater demand than any other. Broken colors, stars, or white stockings are rare in jacks, jennets, and mules.

Style and Action.—While these qualities are not usually considered important requisites in judging and selecting jacks and jennets, they are deserving of consideration, since the hereditary tendencies vitally affect the mule, which is the standard market animal obtained from crossing the jack and the mare. Considered from this standpoint these characteristics should be given the same consideration as in judging the horse. The standard of excellence should be clearly in mind, and judgment passed the same as in the horse, except that the degree of attainment of style and action will not be as noticeable.

Nervous Development.—The horse and the ass represent the extreme in nervous development. The comparison is largely identical with the one used in describing the difference in the temperament of beef and dairy animals. The horse is naturally high spirited, although the degree differs materially, depending on the type or breed in question. Compared with the more nervous temperament of the horse, that of the ass would be classed as lymphatic. In actual use both the ass and the mule are very docile, being less subject to extremes in temperament than the horse.

Sex Characteristics.—The principal differences to be observed in judging the jack and jennet are in the sex characteristics. The jack should have greater scale and should be thoroughly masculine in appearance. The jack should have a well-developed body, thus indicating strength, vitality, and other evidences of strong reproductive power. The jennet

should be strongly developed in the region of the reproductive organs and be thoroughly feminine in appearance. Breeding qualifications are fundamentally the same as in judging the mare, other than the normal peculiarities involved.

Uses.—Jacks and jennets, from a commercial viewpoint, are used entirely for breeding purposes. The ultimate object is the perpetuation of the male for the production of mules, which are rapidly increasing in importance. The judging of jacks and jennets should be considered on a basis of their adaptability for breeding high-class mules. The opposite cross made by mating the stallion with the jennet, which produces the hinney, is not of great importance. Because of this peculiar adaptability of the jack in mule production greater attention should be given to the outcome of the cross, when judging the jack, than otherwise. This emphasizes the importance of having a definite knowledge of the results which will be obtained when a jack of a certain type is crossed on mares of different types. Judging jacks and jennets therefore brings in greater speculation than when judging other classes of breeding animals. Their commercial value for this reason depends almost entirely on their hereditary qualities. Their value in the judging ring is not, therefore, determined on their conformation absolutely but on the probable “nick” or blend which will be made on the females to which they are bred for mule production.

Selection.—In selecting a jack consideration should be given to the environment to which the animal has been subjected. Jacks which have been reared with jennets do not cross successfully on mares for mule production. This is a trait peculiar to the hybrid cross and, consequently, a factor of special significance in purchasing a jack. Jacks which prove to be the most successful for mule breeding are those which have been reared in company with horse colts, young mares, or fillies, therefore jacks should be purchased from farms where such environment has been provided.

SCORE CARD FOR JACKS.

Perfect score.

GENERAL APPEARANCE—20 Points.

<i>Height:</i> (score according to age)	4
<i>Weight:</i> (score according to age)	4
<i>Form:</i> broad, symmetrical, well proportioned, smooth	4
<i>Quality:</i> bone large, strong, clean; hair fine, glossy	4
<i>Temperament:</i> active, disposition agreeable	4

HEAD AND NECK—10 Points.

<i>Head:</i> well proportioned, bone large; profile of nose straight or slightly Roman	4
<i>Muzzle:</i> neat; nostrils large; lips thin, firm	1
<i>Eyes:</i> full, clear, intelligent, prominent	1
<i>Forehead:</i> broad, full	1
<i>Ears:</i> long, pointed, well set, alert (33 inches or over, from tip to tip, preferred for aged jack)	1
<i>Neck:</i> long, muscled, throat-latch heavy, windpipe large	2

FOREHAND—23 Points.

<i>Shoulders:</i> sloping, smooth	2
<i>Arm:</i> short, well muscled, correctly set	2
<i>Forearm:</i> long, clean, heavily muscled	2
<i>Knees:</i> very wide, deep, strong, clean	2
<i>Canons:</i> wide, clean, tendons defined, fluted bone	2
<i>Fellocks:</i> wide, straight, clean	1
<i>Pasterns:</i> sloping, clean, strong	4
<i>Feet:</i> large, deep, wide, dense and lively horn	8

BODY—12 Points.

<i>Chest:</i> deep, wide, girth large	2
<i>Ribs:</i> deep, well sprung, closely ribbed to hip	4
<i>Back:</i> straight, long, muscular	2
<i>Loins:</i> short, wide, heavy muscled	2
<i>Underline:</i> long, straight, flanks low	2

HINDQUARTERS—29 Points.

<i>Hips:</i> smooth, well muscled	2
<i>Croup:</i> wide, muscled, not too sloping	2
<i>Thighs:</i> deep, broad, muscled, strong	2
<i>Quarters:</i> deep, well muscled	2
<i>Stifles:</i> clean, muscular, strong	2
<i>Gaskins:</i> long, wide, clean	2
<i>Hocks:</i> large, strong, free from meat, clean, well set	2
<i>Canons:</i> wide, clean, tendons defined	2
<i>Fellocks:</i> wide, clean, strong, straight	1
<i>Pasterns:</i> clean, straight, sloping. Any indication of knuckling should be severely scored	4
<i>Feet:</i> large, deep with dense and lively horn	8

ACTION—6 Points.

<i>Walk,</i> straight, elastic, true; <i>trot,</i> true, straight, should show bottom of foot when trotting	6
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Total 100

Breed Characterization.—The following information regarding jacks and jennets is of special interest from an authoritative standpoint, as only one or two of these breeds have become fundamentally important in developing the mule industry, which is the basis of the usage of jacks and jennets. The jacks now most largely used for mule production are an American product, having originated from



FIG. 77.—Catalonian or Spanish jack.

various crosses and selections from the following breeds and others of lesser importance. The American or Mammoth jack, which is significantly a product of Kentucky largely, is most important in the mule industry of today.

Catalonian.—The Catalonian breed is a native of northern Spain. This is an important breed of jacks from an American standpoint, owing to the relation of it to the mule-breeding industry of this country. It is the foundation breed of the American or Mammoth jack, which is strictly an American

product. The breed averages from 15 to 15-2 hands high and has good style, symmetry, and action. The bone is fine in texture, although not as large and strong as in the Andalusian. The color is black or brown, the former color usually predominating. The points are light or mealy in color. The ears are large and usually erect, the head broad, the eyes large and prominent, and the facial lines unusually strong. The breed is unusually refined, showing much character, style, and action. It is early maturing and extremely popular among breeders for mule production. The principal points in favor of the breed are the style, quality, color, and refinement. Compared with the Andalusian it possesses superior color, bone, and quality.

Andalusion.—The Andalusion breed of jacks is a native of southern Spain. The breed is of ancient origin and has a number of very desirable qualifications. It is characterized usually by a gray color. Some specimens of the breed are black, although this is rather unusual. The breed has never become popular in America, this being partly due to the gray color which is considered objectionable. Representative specimens of the breed range from 14-2 to 15-2 hands high. The breed is characterized by good bone, which is hard and fine in texture. The head is broad, well shaped, and expressive. The breed possesses considerable style and cleanness and trimness of outline. Some of the other breeds, because of more desirable color qualifications and their special adaptability to mule production, have become more prominent. The quality and temperament of the breed are very acceptable. While a great many jacks of this breed have been imported, they have not gained special prominence.

Poitou.—The Poitou breed is a native of France, where it is regarded very favorably. Specimens of this breed have never been widely introduced into the United States, and they are therefore not of practical interest. The color is black with light points, although grays are not uncommon. The gray color is neither popular with this or other breeds, Poitou jacks, gray in color, not being eligible to registry in the French Record Book. In the native home the animals are ill-managed and usually present a very unattractive

appearance. The hair is allowed to become long, shaggy, and matted, the natural tendency being to a profuse growth of fine-qualified hair. The head is large, the ears long, the neck short, chest broad, and the joints and hocks unusually large. The bone is large and the feet of superior size. As a whole the breed is large and massive in development, although not the most attractive and apparently not the most useful



FIG. 78.—A Poitou jack, one of the rare breeds of imported jacks.
(Courtesy of Adirondack Stock Farms, Glens Falls, N. Y.)

under the conditions which they are produced. They are said to breed large, superior, weighty mules. Better care and attention is important in subserving the best interests of the breed in their native home.

Maltese.—The Maltese jack is a native of the Island of Malta in the Mediterranean sea. This breed has never become popular in American trade, as it has been supplanted by other more important imported and American-

bred jacks. Specimens of the breed are small, ranging on the average about 14 hands high. The color is either black or brown. One of the principal criticisms of the breed is its lack of size, bone, and substance. The head is very well developed, the ears upright and fine in quality. Although the breed has several very desirable attributes its lack of size has reacted very much against it. These jacks are vigorous and show unusual vitality when in service. The attainment of more size is necessary to make the breed of practical value in mule production. This is very important in a jack because of the general inclination toward miniature development in the offspring, either from a jennet or a mare. While the largest jacks are not always the most useful or valuable, size, quality, and substance are important attributes in mule production.

Majorca.—The Majorca jack, imported from the Island of Majorca in the Mediterranean sea, while one of the largest breeds imported, has not become popular as a breeder in this country. With the exception of the French Poitou, it is the largest breed of jacks, often measuring 16 hands high; the average being somewhat under this height. The lack of style, finish and action, however, has mitigated against its popularity. The breed is characterized by extreme sluggishness not desired in any breeding animal. The head and ears are unusually large and the body, as a whole, lacks compactness and symmetry. Although pure bred for a great many years in its native home, its sphere of usefulness has been rather limited. In Spain it has met with considerable success in breeding army mules. The breed is suggestive of criticism from almost every standpoint except size and weight. Breed description is largely a matter of interest rather than utility qualifications.

Italian.—The Italian jack is the smallest of the breeds, the average height ranging from 13 to 14 hands. The color is black usually, although gray is not uncommon. The bone is rather large and above the average in quality. The jacks are of very little importance either as jack or jennet producers. In their native home they are used principally for packing purposes. They resemble the Maltese jack

very much, it being believed by some that one is the descendant of the other. The breed is too small for using on jennets, although very desirable for the production of small mules. The small size of the breed and, therefore, a limited demand for them, has been responsible for the discontinuance of their importation.

American.—The American or Mammoth jack is a distinctive breed which is a derivative of the several breeds of jacks, principally the Catalonian, imported into this country at an early date. The breed is distinctly American and was not



FIG. 79.—An American or Mammoth jack with weight, style, and quality
(Courtesy Kentucky Agricultural Experiment Station.)

pedigreed by a systematic plan until 1892. A registry association—American Jack Stock Stud Book—was established in 1888. Up to the former date jacks which did not attain a height of 14-2 hands and jennets 14 hands were not eligible to registry. After this date jacks and jennets to be eligible to registration were required to be 15-2 hands and 15 hands respectively, unless produced from recorded ancestry. In

case of an imported jack; the minimum height standard was set at 15 hands.

The following measurements are given as typical of this breed:

Tip to tip of ears	33	inches
Width between eyes	9	"
Length of face (poll to end of upper lip)	33	"
Circumference of jaw and face	40	"
" neck	42	"
" girth	70	"
" flank	72	"
" arm	16½	"
" knee	16	"
" canon	9½	"
" hock	19	"
" canon	10½	"

From poll (between ears) to end of tail (total length of body) 84 inches. The principal factors to consider in selecting the jack are weight, bone, style, action, constitution and finish. A jack measuring 15½ to 16 hands and weighing about 1050 pounds in moderate flesh is a good standard to follow in selection.

Description of American Jack.—Hooper and Anderson¹ describe prize-winning jacks of today as having size and weight, good legs and feet, and fluted bone of desirable size. The head should be long, well formed, and the ears 33 inches or more from tip to tip. The prevailing color is black with light points. The standard height at maturity is 15 to 16 hands, such animals weighing from 1050 to 1150 pounds. The girth measurement ranges from 68 to 72 inches. The loin measurement should not be more than one or two inches less than the girth measurement. The canon bone should be from eight to nine and one-half inches in circumference. A jack 15 hands, 3 inches high, and weighing 1150 pounds should measure not less than nine inches below the knee. The hock should be from 18 to 21 inches in circumference, the gaskin measurement approximating 16 inches, and the rear canon 10 inches in circumference.

¹ Kentucky Agricultural Experiment Station.

MULES.

Uses and Adaptation.—The mule is a hybrid obtained from crossing a jack on a mare, the hinney being the result of the opposite cross, or a stallion on a jennet. The latter cross is not recommended and is very infrequently made, as the hinney is inferior to the mule in size and other draft qualities. In this country the principal use of the mule is on the farm, in lumber and railroad camps, in the mines, and in army service. The mule is not adapted to city use, principally because of insufficient weight and small feet, which are not adapted to hauling on pavements. Throughout the South the mule constitutes the work type of animal almost to the exclusion of draft horses. Very few mules are raised in this section, however, a large proportion of them being shipped from the important mule-producing States, which are Kentucky, Tennessee, and Missouri. The mule is especially adapted to Southern conditions, having a greater resistance to heat and the unusually hard usage to which they are subjected by colored teamsters. Their hardiness is unusually apparent and because of this attribute they are placed at rough work where the more nervous temperament of horses would receive a severe test. Mules are also used largely in the South for driving purposes, select animals making very acceptable substitutes for the horse. The lymphatic temperament of the mule and the accompanying hardiness and resistance to rough treatment makes them especially valuable in draft service of this character. Because of the increase of this character of work and the correspondingly increasing magnitude of the mule industry, the mule and its ancestral relations are deserving of more specific study in the class room and on the farm.

General Requirements.—The characteristics which mark a perfect type of horse will in a general way coincide with the attributes desired in the mule. From a purely market standpoint the requirements for the mule are largely the same as those of the horse. Market requirements prescribe that they must be sound, possess quality, have a fine, sleek coat of hair, and be in good flesh. The mule should be compact,

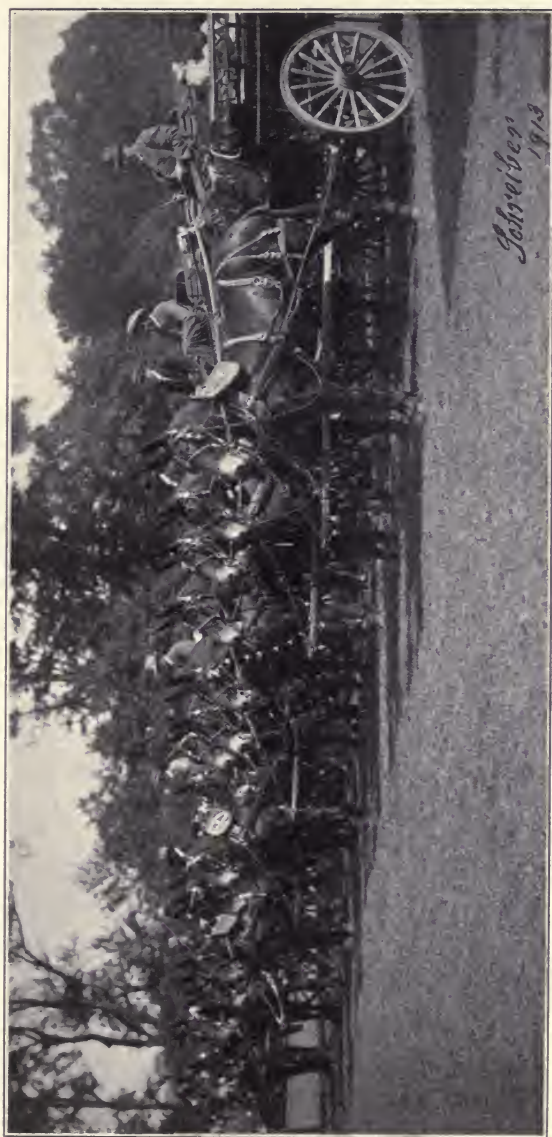


FIG. 80.—A ring of well-bred mules, showing style and quality.

and should possess ample strength and endurance, these qualities being indicated by a full, capacious chest, broad muzzle, and large nostril. The color should be solid, except when characterized by light points, which adds to the fancy and qualifications for discriminating judges and buyers. Mare mules are usually preferred because of early maturing qualities.

Age Limitations.—Mules, like horses, usually have a higher market value and sell to better advantage when from four to eight years of age, although young mule colts sell advantageously on the open market. From a purely utility standpoint, the mule possesses an unusual amount of vitality, often continuing in service to an extreme age under adverse



FIG. 81.—Mules with style and finish have an infusion of light horse blood.

circumstances. While advancing age interferes with the normal capacity of the mule it retains very exceptional enduring qualities until late in life, on the average being much superior to the horse in this respect. Market considerations are based on the age, conformation, quality, style, and action. These factors are all important in the prime mule, the age limit mentioned being directly correlated with these factors in mules possessing the most desirable market attributes. On the whole, age does not affect the selling qualities of mules to the same extent that it does the horse. They sell both younger and older to better advantage.

Height and Weight.—The height and weight of the mule depends entirely on the proposed use or market class considerations. Mature mules range in weight from 600 to 1600



FIG. 82.—Mules with sufficient weight make excellent draft animals, especially on the farm.

pounds or over. It is only on the larger markets that the heavier and draftier animals may be obtained. The 1100 to 1200-pound mule is best suited to average conditions and is therefore in greatest demand, as a general rule. The heavier bred mules are not generally as much in favor because they are frequently not as smooth in form or as agile as the horse of similar weight. The lighter mules are used for work which is less exacting in its requirements and usually where weight is not of first consideration. The height and weight are very closely associated, except in unusual instances where dissimilar or rare crosses have been made. The draftier, weightier mules average about 16 hands high or over and weigh from 1200 to 1600 pounds.

General Conformation.—In general, the form of the mule should conform closely to that of the horse. While the best individuals do not equal the horse in its square, compact form, the nearer this ideal is approached the greater the value of the animal from the market standpoint. Mules do not possess the same amount of symmetry or rotundity of form as the horse. The correlation of the parts is not as significant, there being a greater tendency for each part to individualize itself. This is not necessarily a fault, however, as a complete harmonious cross would not naturally be obtained under the conditions in which mules are produced. The mule has a grosser appearance than the horse, less definition of structure, and clear-cut lines. The tendency to resemble the jack is apparent.

The body of the mule is less cylindrical than that of the horse, smaller, and less capacious. However, the nearer the general body conformation of the mule approaches that of the draft horse the better it is liked, both on the market and in the show ring. The feet of the mule are smaller and longer than in the horse and the arch of the foot is greater. The mule is characterized by moderately clean, square legs, and good feet. The ears are long, the body comparatively narrow, and the hindquarters inclined to be light and unsymmetrical as compared with the horse. Frequently the croup is higher than the withers, thus resembling the male parent. The foretop, mane and tail are not as

profuse with hair as in the horse, the tail of the ass or mule having a brush or tuft. The bone of the mule is usually acceptable, although the joints are sometimes coarse and undefined. The chief distinctions between the mule and the horse are the smaller size, lighter weight, less style and symmetry, less definition of form, and less refinement of the mule.



FIG. 83.—A draft mule with quality and finish.

Quality.—Mules do not show the same amount of quality as horses, breeding considered. The indications of these qualities, however, are the same. The head should be fine, trim and clear in outline; the neck and shoulders smooth and compactly laid in; the bone hard, square and well defined; and the hair straight, sleek, and oily. The joints should be well defined, and the tendons should stand back perceptibly from the canon bone. Coarseness of quality is indicated by a soft,

spongy bone, coarse, rough hair, and undefined features. In judging quality in the mule the line of demarcation should not be too rigidly drawn between it and the horse, as while the same standard is used it is not often as closely approached. General symmetry and refinement of the whole animal should otherwise be indicative of the possession or absence of quality.

Condition.—Condition in the mule has the same general application as in the horse. Most mules are fattened for market often to an excessive degree. This excessive accumulation of fat is objectionable from the standpoint of judging, selecting, and working capacity. Although a mule in high condition has a higher market value than otherwise, such preparation is often the cause of misjudging an animal. Great care should be taken in selecting mules, especially those from large sale barns where high fitting is practised. A mule in low condition is not attractive, although it is often more valuable than after having been fattened and later reduced in flesh.

The stress placed on condition should be governed largely by the type of the mule under consideration. The natural form or muscular development should fix the value of a mule the same as of a horse. The general muscle development is determined by the length and width of the gaskin or lower thigh. Prominent muscular development in this part is indicative of the general body covering. A well-formed mule will naturally fatten and finish smoothly, while excessive fat on an ill-formed mule will cover many defects. These factors are mentioned because of the uniform practice of shaping and selling mules in high condition in most sale stables. When selections are thus made fat and flesh should be clearly distinguished.

Color.—The color of the mule is important from the market standpoint, as a premium is usually paid for mules possessing some standard solid color. The most acceptable colors are black, dark brown, bay, dark gray, sorrel, and light gray. The dark, solid colors are in greatest demand. Black or dark-colored jacks are always in greatest demand for mule-producing purposes. Gray or light-colored jacks

have never become popular, although some excellent steel or dark gray mules are placed on the market. However, this may be the result of using gray or light-colored mares. Fancy mules are drawn from black, dark brown or dark gray-colored animals.

Soundness.—The mule is ordinarily subject to the same kinds of unsoundness as the horse. However, these troubles are not usually developed to the same degree. The natural hardiness of the mule has apparently developed the quality of resistance to hereditary and transmissible diseases. This condition, in conjunction with the sure-footed qualities of these animals in rough, treacherous places of work or travel, gives them a specially significant value. It renders a service possible in the mule which could not ordinarily be developed in animals possessing less hardiness or stability of action.

Temperament and Endurance.—The mule is a steady, persistent animal, moving loads more by intrinsic muscular effort rather than by weight qualifications, one of the chief attributes of the draft horse. In this respect there is very little analogy between the mule and the horse. Notwithstanding the lymphatic temperament of the mule, it should show active, energetic qualities as well as good style, symmetry, and action. Under the labor conditions in the South, the mule is worked very much more successfully than the horse. It will do work under the severest conditions without necessarily showing any indication of fatigue. The credited resistance of the mule to disease, its endurance, patience and docility are commendable attributes, these factors being largely responsible for the widespread favor of these animals under severe or trying conditions.

Style and Action.—The mule is a draft type of animal, broadly considered, although it is used largely for general farm and other utility purposes. In the South it is employed for driving, especially among the smaller farmers. Style and action should be judged consistently with hybrid qualifications. Compared with the horse, these attributes are only moderately developed, although as much of both should be obtained as possible. The stride should be long, straight, uniform, and well balanced. Both walk and trot

should be brisk, free, smooth, even, and balanced. The various phases of action should be judged on the same basis as in the horse.

Structural Form and Qualifications.—The detailed structural form of the mule is the same as in the horse. Ordinarily the mule does not attain the same size, although it is higher in proportion to weight than in the latter animal. The head should be broad, deep, and have length in proportion. The facial outlines should be clear cut, the eyes large and prominent, and the ears large, erect and pointed. The neck should be long and deep and blend evenly into the shoulders, which should have sufficient obliquity to give a reasonably high carriage of head and neck and a short, strong back. The body should be long, closely coupled, deep ribbed, and symmetrical. The chest should be broad and deep and the forelegs set well apart, thus giving good support.

The hindquarters should be long, the croup level, the thighs smooth and symmetrical. It is in the hindquarters, however, that the greatest and most noticeable faults are found in the mule. The croup is often too steep, the hips sloping, and the thighs narrow. This condition should be avoided as much as possible. The hindlegs should be straight, strong and square in bone and well muscled in the thighs and gaskins. The feet should be large and the horn fine and dense in quality. These qualifications should be closely observed, as the feet of the mule are frequently narrow and contracted. The pasterns should be strong and have a sufficient slope to give ease and balance of movement. Other than these considerations, the points of the horse should form the basis of comparison.

The following points on judging the mule were furnished by *J. W. Jones, Jack and Mule Judge, Nashville, Tenn.*

The mule should be of some good solid color. White points are desirable, although they add fancy and not utility.

The mule should have quality, as the expert buyers term it. This is an all-around fineness that portrays good blood and breeding with conformation that indicates the best development of the nervous system, together with stamina and ability to withstand much work.

The head should be large and unusually bony, with a Roman nose free from a meaty appearance. The features should be prominent, with a pleasant appearance.

The neck should come out well back on the shoulders and should be arched, thus making an inclined plane from the shoulders to the top of the head. The chest should be deep and prominent, protruding like the breast of a turkey.

The shoulders should be long and protrude well into the back. The collar-bone should be broad and sloping.

The legs should be nearly straight, with broad, clean, large bone, free from meatiness. The feet should be large, well rounded, and strongly braced from all quarters of the inner joints.

The knees should be broad, deep, and firmly set. The hocks should be broad and muscular, but the feet free from meatiness.

The forearm and stifle should be well developed, thickly covered with muscle tapering to the knee and hock in regular well-defined lines.

The hoof should not present a ribbed appearance, but should be smooth and inclined to look sleek and oily. It should not be contracted, but well sprung and supported by a well-extended, healthy frog. The old saying, "no foot no mule," is literally true, as it is in any other kind of travelling animal.

As an evidence of strength and indication of great staying qualities, the loin and croup, as well as the chest, should be broad and well developed.

The spring of the ribs is important, as they should range close up to the hip-bone and come out from the spine well sprung and extended. A flat rib is very objectionable.

The ears should be long, thin and tapering to the points, presenting a rather folding appearance about the middle. They should be set on the head erect.

The coat of hair should be soft and shiny, covering a pliable skin, mellow and soft to the touch. This denotes good fattening qualities.

The mule should have good length with a low-set flank and bowels. He should have all the weight possible.

SCORE CARD FOR MULES.

GENERAL APPEARANCE—16 Points.		Perfect score.
<i>Weight:</i> score according to age and type.		
<i>Height:</i> 14 hands and up; estimated.....hands; actual.....hands		4
<i>Form:</i> symmetrical, smooth		4
<i>Quality:</i> bones clean; tendons defined; skin and hair fine		4
<i>Temperament:</i> energetic; good disposition		4
HEAD AND NECK—6 Points.		
<i>Head:</i> well defined; medium size		1
<i>Muzzle:</i> fine; nostrils large; lips thin and even		1
<i>Eyes:</i> full, bright, clear		1
<i>Forehead:</i> flat, broad, full		1
<i>Ears:</i> large, well carried, tapering		1
<i>Neck:</i> muscled, crested; throat-latch defined; windpipe large		1
FOREHAND—21 Points.		
<i>Shoulder:</i> long, sloping, well muscled		2
<i>Arm:</i> short, muscled, thrown well forward and backward; forearm well muscled, long, wide		3
<i>Knees:</i> wide, clean, straight, deep, well supported; canons short, wide; tendons well defined		4
<i>Fellocks:</i> wide, straight, strong; pasterns short, clean, straight, angle with ground 45 degrees		4
<i>Feet:</i> size medium, even; horn dense; sole concave; bars strong; frog prominent, elastic; heel wide, high		6
<i>Withers:</i> smooth, well muscled, continuous with neck and back		2
BODY—8 Points.		
<i>Chest:</i> deep, low; girth large		1
<i>Ribs:</i> long, sprung close		2
<i>Back:</i> straight, short, well muscled		2
<i>Loins:</i> wide, short, thick		2
<i>Underline:</i> long; flank low		1
HINDQUARTERS—29 Points.		
<i>Hips:</i> smooth, wide, level; croup wide, muscular		4
<i>Tail:</i> attached high, well carried		1
<i>Thighs:</i> long, well muscled, open angled		2
<i>Quarters:</i> heavily muscled, deep		2
<i>Gaskin:</i> wide muscled		2
<i>Hocks:</i> wide, well defined, strongly supported, straight; canons short, wide, tendons set well back		9
<i>Fellocks:</i> wide, straight; pasterns short, angle with ground 55 degrees		5
<i>Feet:</i> medium size, even; horn dense; frog prominent, elastic; bars strong; sole concave; heel high, wide		4
ACTION—20 Points.		
<i>Walk</i> smooth, stride long, active; trot rapid, straight, regular		20
Total		100

Qualifications of Mule Mares.—The qualifications of mule mares vary, depending on the type of mule which is

to be produced. There are certain attributes, however, which a mule mare should possess regardless of this factor. Such an animal should have size, weight, good conformation, quality, and refinement. The head should show an intelligent, lively disposition, and the temperament should be active. The barrel should be long, deep, broad, thus indicating capacity. The feet and legs should be normal from every viewpoint, including the normal position of the feet and legs as formerly described, and quality should be therein indicated.



FIG. 84.—A characteristic mule mare. (Courtesy Kentucky Agricultural Experiment Station.)

Because of the generally recognized, comparatively coarse qualities of the jack, mule mares should possess unusual quality and refinement. Heavy draft mares are not as desirable for this purpose as those possessing some of the blood from the lighter breeds, such as the Standardbred or Thoroughbred. There should be sufficient blood from these breeds incorporated in the mule mare to overcome the coarser qualities dominating in the jack. Suffolk mares are credited with good mule-producing qualifications.

The body of the jack has a tendency to angularity and,

therefore, he should not be mated with mares of this conformation. Mares with comparatively large, smooth, symmetrical bodies will add size, smoothness, and refinement to the mule. Mares possessing an undue amount of cold blood are not adapted to mule production. In seeking refinement it should not be carried to the extreme and thus decrease the size of the mule, as such animals are not readily salable at remunerative prices. The principal attributes of the mule-producing mare are included in moderate height and weight, a body with squareness of form, well proportioned with the other regions, smoothness and symmetry, strong bone, quality and general refinement, thus showing a moderate amount of light horse finish and refining characteristics.

Market Classes of Mules.—The mule markets recognize several classes which include the following: draft, farm, sugar, cotton, and mining mules. The first two classes are generally of special significance, although not the most widely bred or used. Market mules are sold wholly on their fitness for draft, agricultural, army, or mine use.

The Illinois Experiment Station defines them on a basis of height and weight qualifications as follows:

Class.	Height in hands.	Weight range.
Draft mules	16 to 17-2	1200 to 1600
Farm mules	15-2 to 16	900 to 1250
Sugar mules	16 to 17	1150 to 1300
Cotton mules	13-2 to 15-2	750 to 1100
Mining mules	12 to 16	600 to 1350

Draft Mules.—This type of mule is the largest which is placed on the market. Their height ranges from 16 to 17-2 hands, and their weight from 1200 to 1600 pounds. They should be large and strong in bone, although the quality should be up to standard, the same as in the horse. They should be compact, deep bodied, low set, closely coupled, and have symmetry of form throughout. The muscling should be heavy, especially about the thighs and quarters. They should have a hardy and rugged appearance, such as that which characterizes the draft type of the horse. Mules of this type possessing plenty of quality and substance are capable of doing heavy team work, and their value for this

purpose is being appreciated more as they are given fair trials.

Farm Mules.—Farm mules, as the name designates, are used almost exclusively for agricultural purposes. The type varies considerably, although many very valuable



FIG. 85.—Draft mules $16\frac{1}{4}$ hands high, weighing 1650 pounds.

animals are classed as farm mules. The height of this type ranges from 15 to 16 hands, and the weight ranges from 900 to 1300 pounds. Mules of this type are not as symmetrical or as heavily muscled as those of the draft type, which are supposed to represent the acme of mule production. Farm mules are somewhat rangier, the bone is inclined to be lighter, the body less compact, and the animal, as a whole, more

upstanding. They should possess good bone, feet of moderate size and quality sufficient to make them sell readily on the market.

Sugar Mules.—Sugar mules are used largely throughout the Southern states on the sugar farms or plantations. The name is significant of the work which is required of



FIG. 86.—Draft mules, showing two good colors. Suitable either for draft or farm purposes.

them. These mules range in height from 16 to 17 hands, and weigh from 1150 to 1300 pounds. Usually they are heavier and more compact than the cotton mule. Mare mules are most desired for the trade, ranging from three to six years old. The quality is usually above the average and the general appearance is very striking, especially in the indication of breediness. Weight, finish, and quality are

greater on the average than that of the cotton or farm mule. For this reason sugar mules sell for more money. In judging sugar mules special attention should be given to weight, quality, and adaptability to the work in question. The bone should be fine and strong, the joints well developed, and the feet somewhat larger than that of the average mule. They should be symmetrical in their build, possess an intelligent



FIG. 87.—A choice sugar mule. (Courtesy Illinois Agricultural Experiment Station.)

and shapely head, be strong in the neck and shoulder development, and compact throughout the body.

Mining Mules.—Mining mules are used in the mines and, consequently, do not possess the size and weight of the other classes mentioned. The character of work for which they are used, especially pit mules, necessitates a rather small, agile type of animal. They range in weight from 600 to 1350 pounds, this depending upon whether they are used in the pit or above. Only the smaller types are used under

ground, and as a large majority of them are purchased for this purpose the average height and weight runs low. In height they range from 12 to 16 hands. The body should be compactly built, the legs short and strong, the bone rather heavy, and the feet large. It is necessary to have animals without blemishes, as such a condition is likely to



FIG. 88.—A mine mule, showing characteristics of medium pitter.
(Courtesy Illinois Agricultural Experiment Station.)

give trouble because of the sulphur and chemicals to which they are subjected underground.

Cotton Mules.—Cotton mules are used largely for the cultivation of cotton throughout the Southern states. The demand is usually for a rather small type of animal, the weight ranging from 650 to 1100 pounds and the height

from 13 to 15-2 hands. This type of mule is of still lighter build than the mining mule¹. The body is inclined to be somewhat rangy, the bone small, and the body upstanding. The quality should be uniform and of about the same standard as that possessed by the mining mule, the difference being in favor of the latter.

These mules are usually brought into the South in the early spring before the cotton-planting season begins. In the fall



FIG. 89.—A choice cotton mule. (Courtesy Illinois Agricultural Experiment Station.)

they are frequently sold back to the dealers, refattened at the close of the year and sold again the following season. For this reason the age varies considerably. Although a standard market type, the age is not as uniform as in other types, which are sold and placed immediately in continuous service.

¹ Compared with surface-mining mule.

EXAMINATION FOR UNSOUNDNESS AND FAULTY CONFORMATION.¹**HORSES, JACKS, JENNETS, AND MULES.**

Relation of Soundness to Utility.—In consideration of domestic animals, it is largely in the horse and mule that the determination of the degree of soundness, specifically considered, is of practical consideration. In other animals, structural development and the nature of work performed does not tend to produce such conditions. In horses and other draft animals, broadly speaking, an unsoundness or faulty conformation is of vital concern, as the presence or absence of these conditions determines or measures value both in breeding and draft service. While the ratio of value may differ, depending on the use of the animal and nature of the unsoundness or faulty conformation, under any conditions the value is depreciated, ranging from that of a slight objection to practical worthlessness. Determination of these conditions involves not only a broad knowledge of the structure of horses and mules whereby abnormalities may be detected but also a knowledge of the resulting depreciation in value for draft or breeding purposes.

Definition and Limitations.—An unsoundness is any abnormal condition which makes an animal less capable or which will, during development, decrease natural usefulness. An absolutely sound animal does not possess the slightest deviation from the normal structure. Such animals are rare, however, as slight defects are usually present in the most perfect specimens, although they do not usually interfere with the usefulness or market value. Soundness is relative and not absolute, a horse usually being practically sound and not absolutely so.

An unsoundness should be differentiated from a blemish which simply depreciates the market value of an animal usually without impairing usefulness. A blemish may

¹ Special credit due M. H. Reynolds, University of Minnesota.

occasionally impair usefulness; however, such conditions are rare. Blemishes usually decrease market value only, while an unsoundness decreases both market value and usefulness. A theoretically sound horse is one which has no disease or other condition that interferes with his usefulness or market value. He may have a disease from which he will recover, yet at the time of the examination such an animal will be unsound.

Unsoundness may be temporary or permanent. Temporary unsoundness may be illustrated by an influenza from which a horse will probably recover, or by light sprains or a bruised ankle from interfering. In the latter case the question would arise at once whether the interfering was due to faulty conformation or to faulty shoeing. In the former case the condition would be serious, while in the latter it would be unimportant as it could be remedied by shoeing the animal properly.

Normal Conditions.—It is necessary to become familiar with the usual normal and abnormal conditions for comparative purposes. The hocks may be perfectly sound and yet have a peculiar bony development. In such cases it will generally be found that both hocks are alike. The knees may have a similar peculiar development and yet be perfectly sound. It is necessary to become familiar with all such conditions before an animal can be examined rapidly and accurately.

General Examination.—An examination for soundness should be systematic and thorough, although it may be rapidly accomplished. The examination should be made with the horse in the stall, as he backs out, stands at rest, and in motion. In the stall he should be examined for cribbing, weaving or any other stable habit which is objectionable. As the horse backs out of the stall, he may show a peculiar use of the hindlegs or imperfect control, due to serious disorders of the nervous system. Frequently the first intimation of spavin may be detected as the animal is made to stand from side to side, particularly as he steps toward the spavined leg.

After the animal is taken out of the stall his movements

should be observed while walking and trotting. He should be viewed coming toward, passing by, and going from the observer, who should note the movement of the entire body and the use of each limb. It is especially important to observe the head and hips in locating the diseased limb. The front foot is a very common seat of lameness.

Locating Lameness.—It is usually quite easy for any observer to recognize that an animal is lame, provided the lameness is at all decided, but there are many cases where the lameness is so very slight that it is difficult for an expert to locate it or even be sure that the animal is lame. A very common error is that of locating the lameness on the wrong side. This is easily avoided if it is remembered that the head and weight of the body in general come down most noticeably with the sound limb. For instance, a horse which is lame in the left front leg will drop the head very perceptibly as he lands upon the right front leg.

Some forms of lameness are detected with great difficulty when the animal is walking, but are easily seen when trotting. It is usually conceded that the latter is the best gait for diagnostic purposes, although the observer should study the movements at both the walk and trot if possible. The animal should be tried on both hard and soft ground, and on the side of a hill. If the lameness is in the foot, it is most marked when the animal travels on hard ground. On the contrary, when a horse is lame in the shoulder, he is apt to travel with great difficulty in deep mud or snow.

Bony Growths.—Splints, spavins, and ringbones, are simply developments of bony tissue, the result of an inflammation of the periosteum. These are all recognized as forms of unsoundness, and usually cause lameness. This inflammation may have its origin in bruises or other injuries, or possibly the inflammation in this tissue may be the result of an extending inflammation from some adjoining tissue, but in any case the result is usually a projecting development of bony tissue.

Splints.—These appear as small tumors along the metacarpal bones, usually at the junction of the large and small metacarpals. They may be of various shapes and sizes. They are generally more serious when located near the knee.

Occasionally there appears what is known as a pegged splint, in which the growth extends across the back of the canon, beneath the suspensory ligament.

The lameness which results from splints is rather easily recognized: (1) By locating the splint, noting the sensitiveness to pressure at this point. A peculiarity of the lameness is that the horse walks nearly or quite sound, but trots very lame, especially on hard ground. There is a natural tendency to recover. Lameness from splints is rarely seen in aged horses for this reason. (2) When the splint appears very close to the knee, or in the pegged form, there is less prospect of natural recovery, and with the latter form lameness is very apt to be permanent, unless relieved by surgical means.

Ringbone.—This is characterized by enlargement of some portion of the pastern bones. It may be in front, behind, on either side, or extend entirely around this region. It may be located near the crown of the hoof or very much higher, thus dividing ringbone artificially into two classes, high and low.

Ringbones are very much more serious forms of unsoundness than splints, as they are more apt to be permanent in effect, and even if the soreness is relieved, there is likely to be a mechanical lameness because of a stiffened joint. This unsoundness and the lameness resulting from it are very easily detected.

Sidebones.—A sidebone indicates an abnormal condition of the lateral cartilages, which are naturally elastic. Sidebones are detected as bonelike structures which appear above the crown of the hoof and just beneath the skin on either side. They may cause lameness during the period of inflammation and hardening. In some cases the lameness is persistent.

Spavin.—The cause of lameness, recognized under the name of bone spavin, is an abnormal condition of the tarsal bones at the lower, inner, front portion of the hock. There is usually an enlargement, varying from a very small growth, commonly called a jack, to a very large growth, known as bone spavin.

There is another form of bone spavin in which there is a

slight or possibly no external development at all. In this form of spavin there may be diseases of the bones in the deeper parts; particularly erosions of the articular cartilages. Animals with bone spavins have a tendency to recover without treatment, although in many cases the period required for natural recovery is very long, extending through a period of years. In other cases recovery can never occur. Recovery, when brought about by natural or artificial conditions, implies that certain of the tarsal bones have united in the process called technically, ankylosis, and the inflamed surfaces are no longer rubbing together as the limb moves.

Many bone spavins doubtless appear as the result of slight injuries in susceptible subjects, particularly those that have a strong hereditary tendency to diseases of this kind. Bone spavin is one of the most serious forms of unsoundness. A spavined horse steps on the toe, and carries the hock-joint with as little movement as possible. The lameness usually disappears or at least greatly improves with exercise. What is known as the hock test is made by holding up the limb, with the hock sharply bent, for several minutes. The horse is then started suddenly. In case of spavin the first few steps are very lame. Old horses not affected by spavin may respond to this test and lead to error in judgment.

Synovial Sacs.—The ordinary wind puffs of the ankle, and bog spavins and thoroughpins at the hock, are typical illustrations of enlarged synovial sacs. They are not usually the cause of lameness, but are to be regarded rather as symptoms.

Wind puffs usually indicate considerable amount of hard road work.

Bog Spavins.—These are enlargements of the synovial sac of the hock-joint, and appear at the inner and front part of the hock. They are often hereditary.

Thoroughpins are very similar to bog spavins and wind puffs, except in location. Thoroughpins appear at the upper and back part of the hock. They may or may not connect with the synovial sac of the hock-joint.

Open Joint.—Lameness from open joint is quite common among city horses. This usually results from punctures of

the synovial sacs and the entrance of foreign matter, resulting in an acute inflammation or synovitis. This form of lameness can usually be very easily detected, and the cause recognized. It is very serious under all circumstances, and frequently results in loss of the animal.

Curb.—This is a result of an injury or strain at the back of the hock-joints, and is characterized at first by a hot, sensitive swelling just back of the lowest part of the hock-joint. After the period of swelling and inflammation subsides, there is apt to remain a hard tumor, particularly on what is known as curby hocks. In cases of young animals given proper treatment the remaining enlargement may be very slight or may practically disappear.

Capped Hock.—Capped hock is not usually a cause or condition of lameness; but is mentioned for other reasons. This is an unusual prominence at the point of the hock, produced by bruises. Some horses get it by backing against the stalls, so that they injure the point of the hock. Other cases are produced in car shipments, or from a natural tendency. The first swelling may usually be reduced by prompt treatment, but it returns with very slight provocation, and after several attacks is likely to be permanent. This abnormality does not injure horses for actual use, but it is unsightly, and materially reduces the sale value.

Shoe Boil.—This appears as an enlargement in the point of the elbow or superior extremity of the ulna. It is very similar to capped hock in cause, character, and subsequent history. Shoe boils are unsightly and injure sale, but do not usually cause lameness.

Other Important Examinations.—The poll should be examined for evidences of enlargement, roughness or scars, which are the result of fistula or poll evil. The poll and back of the ears should be examined for sitfasts, due to pressure from the bridle or halter. If the sitfast has been present an animal is likely to offer some resistance when the hand is passed over the region of the trouble.

Ears.—The ears in a well-bred animal should be lean, clean, and covered with soft, fine hair. The ears should be freely movable, this being a good index to temperament.

In examining them it should be noted whether small tumors are present. Horses in which there is little or no movement of the ears, are usually afflicted with deafness.

Eyes.—The eyes should be of equal size, large, clear, free from tears, the pupils black, the lids thin and free from wrinkles. They should be equally prominent and set on the same level. Small eyes are known as pig eyes and generally indicate a sullen disposition or an animal lacking in courage. Exceptionally large, prominent eyes are frequently associated with short-sightedness. Horses which show an unusual amount of white in their eyes generally possess some form of viciousness.

Nostrils.—The nostrils should be flexible and large enough to admit an ample supply of air. Small nostrils usually denote narrow chest, weak lungs, and, therefore, low constitution or vitality. Nostrils which are constantly dilated are indicative of wind troubles. If the cartilages at the opening are hard, the condition usually denotes heaves. During exercise the movements are accelerated in proportion to the exertion. The color of the nostrils should be rosy pink, this becoming brighter with exercise. The presence of scars, irregular in shape and extent, or the appearance of ulcers show indications of glanders. Occasionally small tumors may be found. Openings from the teeth or from the facial sinus may be the source of pus discharges.

Teeth.—The teeth of the horse should come in direct opposition. If the upper teeth overhang the lower, the condition is known as parrot mouth. Excessive forms of this trouble prevent grasping of food, prevents even wearing of the incisors and molars, and interferes with the nutritive powers. The front teeth should be examined for evidence of cribbing. Horses addicted to this vice have the outer border of the teeth worn off more than the inner, thus leaving a distinct wedge-shaped opening between the upper and lower teeth. The presence of premolars or wolf teeth is not considered an unsoundness. They have no relation to the eye diseases.

Withers.—The withers are subject to abuses from various sources, such as narrow stalls, tight collars or saddles. These

sometimes cause abscesses or a fistula, and even the destruction of the ends of the bony spine. A depression may thus be formed in the top of the neck or withers. A fistula may appear as a small, hard, swelling on one or both sides of the neck, near the top where the collar is placed. Running sores or swellings in this region should be regarded with suspicion.

Shoulders.—The shoulders should be examined for sweeney or atrophy of the muscles, for tumors, collar boils, and abnormal growths. Atrophy of the muscles may be slight wherein some weak, counter-irritant may be used to cause temporary fulness. A well-marked atrophy may be filled with air for the temporary effect of deceiving the eye. The point of the shoulders should be examined for enlargement due to osteoporosis or articular joint disease.

Feet.—The hoof is composed of a hardened sole and frog which should be elastic and tough. The wall is that part of the hoof which is seen when the foot is on the ground. The wall is divided into the toe, side, quarter and heel. The frog is the wedge-shaped soft horn lodged in the angle formed by the bars and the back of the sole. The sole is all that portion viewed when the foot is lifted without including the margin of the wall and frog. These parts are important in the examination.

The feet should be examined for sand cracks, toe cracks, quarter cracks, and other such conditions. Examination should be made for the parallel rings that mark the effect of laminitis or founder. The presence of calk marks indicates restlessness or carelessness with which the animal handles himself. The heel should have good width and be wider at the bottom than at the top. The frog should be full, wedge-shaped, and firm. It is this part which becomes the seat of thrush or canker. The character of the shoe should be noted for balancing the action and preventing interference.

Examination in Harness.—The horse should be placed in harness and attention given to his behavior while the harness is being fitted. It should be observed whether he kicks, strikes or bites when the girth is tightened. The reins should be taken to determine whether an animal is hard or

tender in the mouth. It should be observed whether he frightens at strange objects when being driven. A tight-fitting collar may be responsible for rejecting an animal which is duly qualified with proper collar adjustments. The wind should be tested for whistling, roaring, and heaves. The ear of the examiner should be put to the throat, the sides of the chest, and the hands placed on the flank to detect any unnatural sounds or conditions in breathing.

Going Surface.¹—The surface over which the horse steps has a marked influence on the character of his stride, which may be taken advantage of in the schooling process. As a general rule, heavy, soft or deep going causes a high stride, while a hard, smooth surface is conducive to speed. Of the speed horses, trotters and pacers take more kindly to the hard track than the runners, which do best on the turf or a deeply scratched dirt track. The difference in the going will frequently account for a horse trotting or pacing, the heavy or deep going causing double-gaited horses to trot, while a change in footing will shift them to the pace.

The common defects and peculiarities in the way of going, for which any of the preceding factors may be responsible or tend to overcome are:

Forging.—Striking the ends of the branches or the under surface of the shoe of a forefoot with the toe of the hindfoot.

Interfering.—Striking the supporting leg at the fetlock with the foot of the striding leg. It is a common result of the horse standing in the base-narrow, toe-wide or splay-footed position.

Paddling.—An outward deviation in the direction of the stride of the foreleg, resulting from the toe-narrow or pigeon-toed standing position.

Winging.—Exaggerated paddling in horses that go high, and, consequently, deviate more noticeably.

Winding.—A twisting of the striding leg, around in front of the supporting leg, after the manner of a rope walker; most commonly seen at the walk in wide-fronted draft horses.

¹ Courtesy of C. W. Gay.

Scalping.—Hitting the front of the hindfoot above or at the line of the hair against the toe of the forefoot as it breaks over.

Speedy Cutting.—In which the spreading trotter at speed hits the hindleg above the scalping mark against the inside of the breaking-over forefoot as he passes.

Cross Firing.—Essentially forging in pacers, in which the inside of the near forefoot and off hindfoot, or the reverse, strike in the air, as the stride of the hindleg is about completed and the stride of the foreleg just begun.

Pointing.—A stride in which extension is more marked than flexion, as is commonly seen in the trot of a Thoroughbred. Pointing also indicates the resting of one forefoot in an advanced position to relieve the back tendons while the horse is standing.

Dwelling.—A scarcely perceptible pause in the flight of the foot, as though the stride had been completed before the foot reaches the ground, and noticeable in actors.

Trappy.—A quick, high, but comparatively short stride.

Pounding.—Hitting the ground hard at the conclusion of a high stride.

Rolling.—Excessive side motion of the shoulders, usually confined to wide-fronted horses.

CHAPTER X.

JUDGING BEEF AND DUAL PURPOSE CATTLE.

EVOLUTION AND IMPORTANCE OF BEEF CATTLE INDUSTRY.

THE evolution of the beef cattle industry has had as its basis the application of better methods of breeding and feeding, the extent of these developments having depended largely on closer selection of animals for these two purposes. Selection involves judging, which is the nucleus of all live stock improvement. The improvement of the beef cattle industry through this agency is therefore important, both from the standpoint of present-day and future breeders. Viewed from the standpoint of the large cattle markets which are responsible for directing the large number of cattle passing through them, the importance of the industry becomes eminent.

The cattle breeding industry is supported in a large measure by the small breeder, who is responsible for the kind and

EXPLANATION OF FIG. 90.

- | | | |
|-------------|------------------------|--------------------|
| 1—Mouth. | 13—Neck. | 26—Scrotum or cod. |
| 2—Nostrils. | 14—Shoulder junction. | 27—Hindflanks. |
| 3—Face. | 15—Top of shoulder. | 28—Sides or ribs. |
| 4—Ears. | 16—Crops. | 29—Back. |
| 5—Eyes. | 17—Heart girth. | 30—Loin. |
| 6—Forehead. | 18—Shoulders. | 31—Loin. |
| 7—Poll. | 19—Fore flank. | 33—Thighs. |
| 8—Horns. | 20—Knees. | 34—Rump. |
| 9—Jaws. | 21—Shanks. | 35—Tailhead. |
| 10—Throat. | 22—Feet. | 36—Twist. |
| 11—Dewlap. | 23—Dew claws. | 37—Tail. |
| 12—Brisket. | 24—Belly or underline. | 38—Hocks. |
| | 25—Sheath. | |

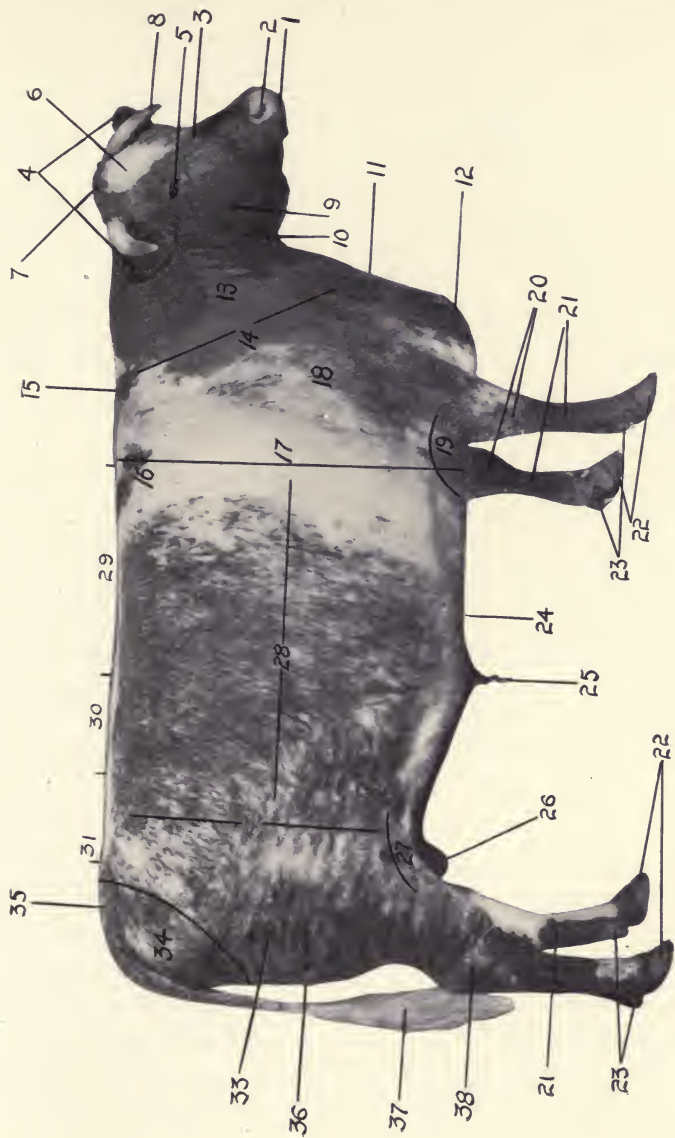


Fig. 90.—Location and names of the exterior parts of beef cattle.

quality of cattle placed on the markets. His knowledge of animal form, therefore, should be exacting. It is within his range of practical operations to increase form and quality to the utmost. Whether this is done will be determined by the knowledge which he acquires in properly applying these agencies of improvement in the herd. Figures have been cited where the increase of one pound on the total weight of every finished meat-producing animal would mean an increase of 172,437,403 pounds of edible meats. From this statement it is readily imaginable how the most modern methods of breeding, selection and feeding would bring a greatly added profit, not only to the individual, but to the beef cattle industry as a whole. Considered from the broad viewpoint, there is still a field for improvement which is magnified many times, compared with the improvement which has been made in the past.

Beef Cattle Products and Their Uses.—The uses of beef cattle products are varied. In former years, before the advent of modern abattoirs, practically the only parts utilized were the carcass proper, the hide, and certain edible parts of the viscera. Modern methods of killing and handling cattle products have made it possible to utilize almost every part of the carcass. This has been of special importance to the producer and feeder, although in an indirect way. Their interest lies directly in the improvement of animal form, which in the beef animal involves a long, broad, deep body,

EXPLANATION OF FIG. 91.

Skeleton of cow, showing relation of bone and muscle: *1.H.*, atlas; *7.H.*, seventh cervical vertebra; *1.R.*, first thoracic vertebra; *6.R.*, sixth rib; *12.R.*, twelfth thoracic vertebra; *13.R.*, last rib; *1.L.*, first lumbar vertebra; *6.L.*, last lumbar vertebra; *K*, sacrum; *1.S.*, first coccygeal vertebra; *6.K.*, sixth costal cartilage; *x*, wing of atlas; *1*, scapula; *1'*, cartilage of scapula; *2*, spine of scapula; *3*, acromion; *4*, humerus; *4'*, external condyle of humerus; *5*, external tuberosity of humerus; *6*, deltoid tuberosity; *7*, ulna; *8*, olecranon; *9*, radius; *10*, carpus; *11*, accessory carpal bone; *12*, metacarpus; *13*, phalanges; *14*, sternum; *14'*, manubrium; *14''*, xiphoid cartilage; *15*, ilium; *16*, external angle of ilium; *16'*, internal angle of ilium; *17*, tuber ischii; *18*, femur; *19*, trochanter major; *20*, patella; *21*, tibia; *21'*, external condyle of tibia; *22*, tarsus; *23*, distal end of fibula; *24*, tuber calcis; *25*, metatarsus; *26*, phalanges. (After Ellenberger-Baum, Anat. f. Künstler.)

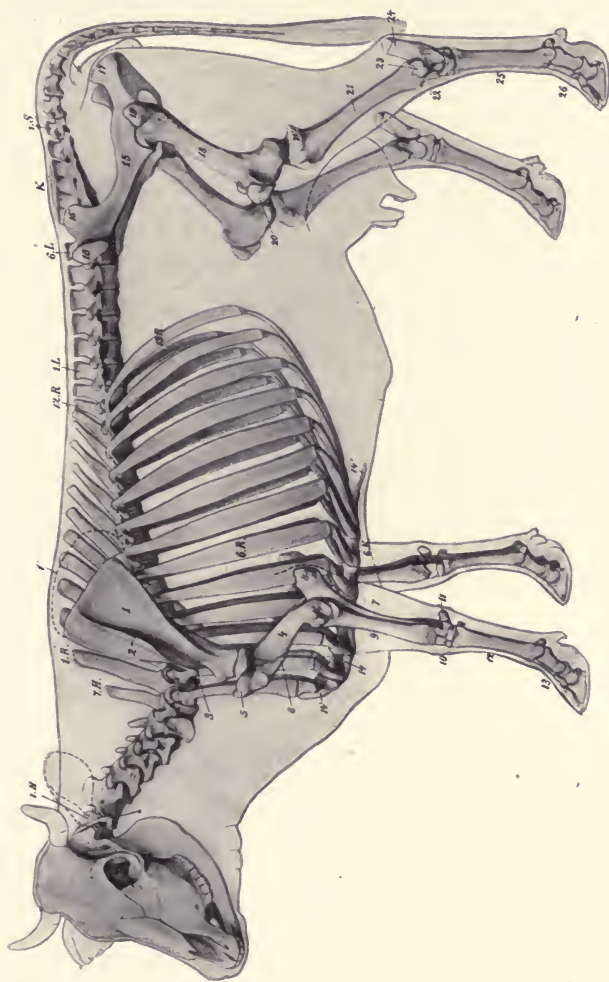


FIG. 91.—Skeleton of cow, showing relation of bone and muscle. (Courtesy of L. W. Sisson, from *Anatomy of Domestic Animals*.)

and square, full, compact quarters with the minimum of waste products. The more highly developed, therefore, that the breeder can perfect animal form, the nearer will he approach the ultimate demands of the feeder or finisher and the butcher.

Relation of Structure to High-priced Cuts.—In perfecting animal form the breeder is vitally concerned with the development of certain parts. This development must be made, however, in perfect correlation with those characteristics which give the animal life, vigor, and thriftiness. The parts of a beef animal which are of greatest concern to the packer, the butcher and the meat eater are not directly concerned with the functions of life and vitality which govern the breeder's operations. The butcher, from his viewpoint, would be pleased to secure only those animals which possessed the largest relative proportion of the highest-priced cuts, providing his trade merited such selection. This would be dependent on conditions. The better the quality of the product which can be purchased on an equal-price basis, the better the butcher and his patrons will be satisfied.

A beef animal must possess, however, other attributes aside from meat-producing qualities. It must possess constitution, capacity, early maturity, quality, and the requisites for prime finish. These, of necessity, call for development of animal form which in most cases is antagonistic to the production of the maximum of the highest priced cuts. There must be, therefore, a close and direct correlation between the attributes of life-giving functions and meat-producing qualities. The higher the attributes of beef-productive conformation can be perfected without detracting from these life-giving functions, the nearer the perfect animal will be approached from the standpoint of the packer, the butcher, and the meat eater.

Coördination of Bone and Muscle.—The muscular part of an animal and associated fat-producing qualities represent in the main the factors of importance in judging a beef animal. In order to know what lies beneath the skin, the examiner must have a thorough knowledge of the bony development in its relation to muscle and fat formation. A

study of the skeleton and the outline drawing will indicate quite vividly the relation of these parts. The head of the beef animal is formed largely by the bony development of this region. The variation from the form as examined on the exterior is very slight from what would be found on an examination of the bony framework beneath. The neck is just the reverse, being formed largely by the muscles constituting this part of the animal. Meat obtained from this region, however, has a comparatively low market value.

The shoulders are also formed in a large measure by the muscles composing this part. Although meat from this region has a comparatively low value, it is important that the shoulders be smooth and compact. Rough, open, thinly covered shoulders are not only indicative of relatively low muscle formation, but they are otherwise indicative of coarse quality and a low dressing percentage. The body proper is outlined largely by the rib development. This is especially true in that part which is taken off with the forequarter in carcass beef, this including all except the last rib, which is usually left on the hindquarter. The hindquarters of the beef animal contain a relatively large proportion of the high-priced cuts because there is a relatively large proportion of muscle to bone and the quality of the product is superior to that in any other region. The region of the loin, prime ribs, and thighs or round are especially valuable from the market standpoint because of these factors. A clear knowledge of this condition is, therefore, necessary to have a broad understanding of the value of the carcass cuts and the qualities or characteristics which indicate them in the live animal.

Conformation.—The desired conformation of the beef animal should be self-evident after the former consideration of the main attributes which give value to the correlated parts of the structure. The body should be long, wide, deep, and low set. The back should be broad, thus designating the shape and turn of the ribs, which should be square, and extend low to give depth of body. The coupling should be short, the loin broad and deep, and the flank low. There should be in all the close, compact condition which is

evidenced by the smooth, compact, even finish characteristic of an animal best suited to market demands.

The head should be broad, long, and clearly outlined, the muzzle large, and the eyes clear and prominent. The neck should be short and compact and should blend evenly into the head and shoulders. The width of the animal should be uniformly developed from the forequarters to the buttocks. The thighs should be broad and thick, the quarters well filled, and the twist full and low.

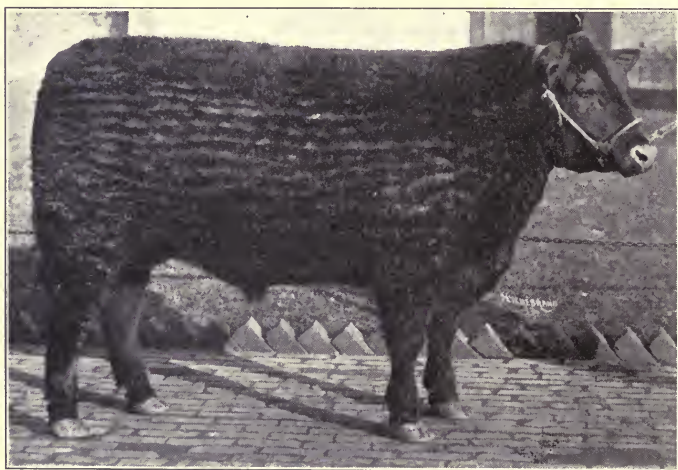


FIG. 92.—Fat steer, illustrating thick-fleshing characteristics, quality and finish.

The most valuable cuts in the beef animal are taken from the loin, ribs, and thighs. This makes it necessary to emphasize the development of an animal in these regions. Coarseness about the head, neck, and forequarters is objectionable, as it still further reduces the value of the already cheapest cuts, and, in addition, the value of the best cuts, because of the close association with the value of these parts. Such a condition usually has associated with it a narrow back and loin, rough, undeveloped quarters, high flanks, shallow body, and lack of natural flesh in general. The

final disposition of the beef animal is on the block, where the crucial test is made. Lack of development in the parts mentioned cannot fail to escape the eye of the butcher who pronounces final judgment and who therefore signifies the value of animals, this being based directly on their general conformation as above described.

Fleshing Qualities.—In judging cattle it is not possible to have too much natural flesh, meaning lean meat, providing it is properly distributed. This is largely a factor which is transmitted in the animal and should therefore be a guide in selecting a breeding animal, as well as a block animal, from which the most desirable returns are anticipated. A clear distinction should be made between a wealth of natural flesh and a soft, flabby covering which accumulates with high feeding and excessive condition. In examining an animal in the show ring the judge should search for those points which will enable him to determine between fat accumulation and natural flesh development. Patchiness, soft, flabby flesh, rolls and ties, are very objectionable, indicating lack of quality and the general smoothness desired. These points are significant both in the breeding animal and the feeder, as in the former such undesirable qualities are transmitted and in the latter they are seriously objectionable on the block. An animal either in high or low flesh should show a straight, even contour and be firm and uniformly covered with flesh and fat.

Quality.—The flesh of the beef animal is one of the most important products which enters into the trade for human consumption. While a large percentage of the slaughtered beef, especially that utilized on local markets, represents the products from the lower grades of cattle, there are other important markets to be supplied wherein the standard of quality is an important consideration. This attribute is essential, not only in the production of a better quality of meat to satisfy the demands of the trade, but it is significant of a generally higher price level for those producing it. A clear-cut, refined animal possesses important attributes which signify the presence of this characteristic.

The head should show clear-cut character, clean facial out-

lines, and a general expression of intelligence and thriftiness. The bone should be smooth, hard, and dense, the skin of medium thickness, pliable, and of a healthy color, and the hair fine, straight, and uniformly covering the body. The shoulder development is important, as roughness, openness or coarseness are indicative of lack in general refinement and, therefore, quality characterization. Large bone, undefined joints and a coarse-textured horn, are likewise indicative of



FIG. 93.—Feeder steer ill-shaped and lacking in natural flesh.
(Photograph by author.)

inferior quality. The presence or absence of these characteristics in general determines the degree of quality or general refinement which an animal possesses. A close, compact, symmetrical development throughout, which condition is indicated by head and facial development, bone formation, and the condition of the skin and hair, is indicative of an animal qualified to fulfill the requirements of the breeder, feeder, or the butcher.

Constitution.—Indications of constitution are not only important to the breeder because of hereditary qualifications,

but also to the feeder in preparing an animal for market. It has been mentioned that there are certain portions of the animal which are equally important from the viewpoint of the producer, the feeder, and the butcher. Constitution is one of these attributes which must be possessed not only to reproduce strong, thrifty, individuals, but also to render the feeding animal of greater significance in the process of market preparation. Weak constitution and low vitality are the bane of both the breeder and the feeder.

The indications of constitution are significant in the head and chest development. The head should be strong, clean and impressive, the nostrils large and open, the muzzle large and broad, the forehead broad and the chest full and deep. This insures a large girth measurement within which the vital organs have ample opportunity to perform their normal functions. If for any reason the natural process of these organs is interfered with it results in low vitality. Such a condition is especially marked about the head. The eyes become dull and sunken, the skin dry and harsh, and the hair deficient in the normal amount of secretion. There is a characteristic appearance in any animal possessing strong constitutional development. Animals possessing these attributes have strong, vigorous bodies, thus insuring a robust animal capable of reproducing or finishing for the block in a most satisfactory manner.

Nervous Development.—The evidences of nerve development are very strikingly portrayed in comparing the beef and dairy animal. The former usually maintains a quiet, satisfied attitude regardless of environment. The beef animal is thus described as being lymphatic or comparatively low in nerve force or nerve development. In the dairy animal there is an alertness and activity very different from that exemplified in the beef animal. A highly developed, nervous organization portrays activity such as that manifested by the dairy animal in utilizing the feed to the best advantage for milk-productive purposes. The beef animal, on the contrary, having a low nervous development uses the food for storing fat on the body. The two conditions are

strikingly significant of what animals will do when placed in their respective conditions for work.

Weight and Maturity.—From the standpoint of the breeder, a beef animal matures when three years of age. However, the same animal may be matured when from twelve months or thereabout to two years of age from the standpoint of the feeder and market requirements. Animals finished at the former age or somewhat older, go on the market as baby beef. This is a very desirable method of finishing these animals, especially if the dealer caters to a fancy trade. Whether this is a wise practice is dependent on the feeder and his markets largely. While this is a problem which does not concern the judge of animal form, it is important to have a clear understanding of the attributes of early maturity in animals used in the various fields of the breeder, the feeder, and the packer. From the standpoint of the breeder proper, maturity has reference to the time when an animal attains its normal weight and development. This is largely a matter of age, methods of maintenance, and care and handling, problems which do not affect the consumer of the product.

One of the important requisites of a beef animal is that they show in their structural make-up an inclination to develop rapidly and mature at an early age. This is important, either in the breeding or feeding animal. Weight for age in either case is important. Late-maturing qualities are very objectionable and should be bred out by the selection of animals having an inclination to develop their normal size at an early period in life. Evidences of this characteristic are indicated in a broad, deep muzzle, a wide, intelligent head, a bright, placid eye, a deep, broad, chest; a square, compact body; full hindquarters with compactness, symmetry, and correlation of parts throughout. The reverse of these conditions is indicative of late maturity, a condition which not only makes the growing of beef cattle unprofitable but hinders as well the production of the highest class of beef products. Normal development at an early age is not only important to the breeder, but to the feeder, and indirectly to the consumer, as these character-



FIG. 94.—A group of three-year-old steers fully matured. Increase in weight will be fat principally instead of growth.
(Photograph by author.)

istics indicate quality in carcass beef. Animals produced with these attainments will not only be more profitable to the producer and feeder, but more satisfactory to the trade.

Capacity.—The usefulness of a beef animal is measured by its power to consume feed and convert it into the proper material for body maintenance and development. The breeding animal should have capacity as applied both to reproduction and body development. This condition, therefore, should be doubly emphasized in such animals. The capacity is dependent largely on the body development, the blood supply, and the health and vigor manifested. A narrow, shallow-bodied animal or one with an insufficient blood supply cannot be healthy and vigorous, and consequently cannot have the capacity for consuming and manufacturing feed into the ultimate material needed for body growth and development. Capacity is quite closely correlated with constitution and the general conformation of the animal. The one condition should be indicative of the other. Lack of capacity is usually associated with lack of constitution and reproductive development. Its application is far-reaching in studying animals from these two viewpoints.

Condition.—Condition is significant of the quantity of fat deposited in the muscular tissues and over the body of

EXPLANATION OF FIG. 95.

- | | |
|-----------------------------------|---------------------|
| 1, 2, 3—Round. | 9—Flank. |
| 4, 5, 6—Loin. | 10, 11—Plate. |
| 7—Rib. | 12—Shank. |
| 8—Chuck. | 13—Suet. |
| 1—Hind shank. | 6—Pinbone loin. |
| 2—Round, R and S, off. | 5, 6—Flatbone loin. |
| 3—Rump. | 10—Navel. |
| 4, 5—Loin end. | 11—Brisket. |
| 1, 2, 3, 4, 5, 6, 9—Hindquarters. | |
| 7, 8, 10, 11, 12—Forequarter. | |
| 7, 8—Back. | |
| 7, 10—Piece. | |
| 8, 11, 12—Kosher chuck. | |
| 8, 10, 11, 12—Triangle. | |
| a—Aitch-bone. | e—Chine-bones. |
| b—Rump-bone | f—"Buttons." |
| c—Crotch. | g—Skirt. |
| d—Cod. | h—Breast-bone. |

an animal. While breeding stock is frequently placed in high condition for the show ring it is generally recognized that when a breeding herd is maintained in moderate con-

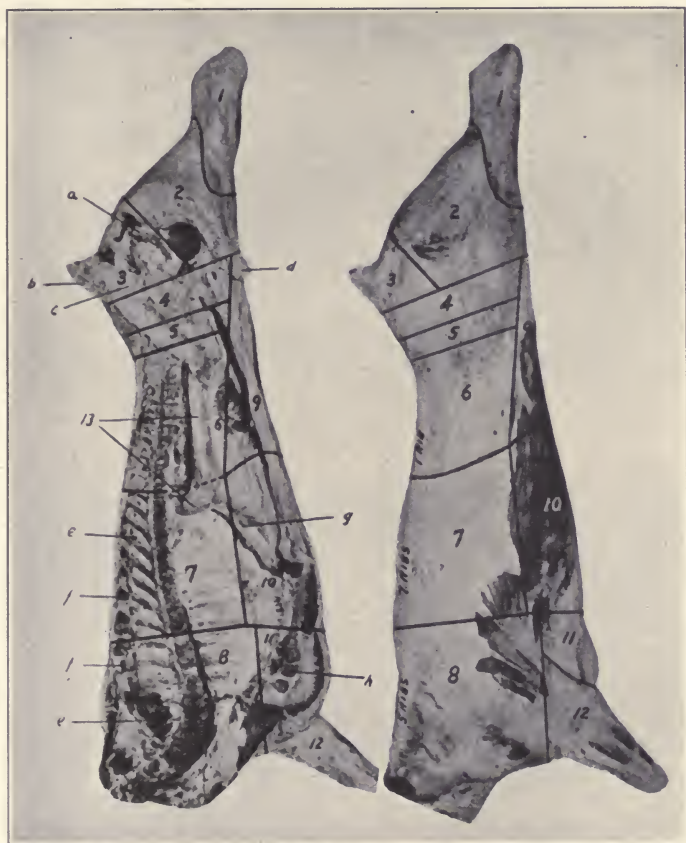


FIG. 95.—Showing a beef carcass from the viewpoint of the butcher.
(Courtesy Illinois Agricultural Experiment Station.)

dition the results are more satisfactory. Market animals, however, should be fitted in high condition, although many of them are marketed without having acquired sufficient

fat to make them sell most advantageously. A good quality of meat is obtained only when the fat is properly interspersed through the muscular tissues and over the outside of the carcass. Animals may be overfinished, however, which detracts greatly from their value. This condition is more frequently met with in the show ring.

The indications of finish or condition are quite numerous; however, there are certain fixed attributes which are indicative of this qualification. A finished animal has a round, smooth, plump body in contradistinction to the thin body, showing a decided lack of muscle and fat development. The most characteristic specific indications are a fulness at the tongue root, a well-filled shoulder vein, a low and well-filled flank, and a firm, well-filled cod or purse.

Dressing Percentages.—The dressing percentage of carcass beef varies from 45 to 65 per cent. Animals occasionally dress as high as 70 per cent. or over. Such animals, however, are the result of exceptionally high fitting which does not always involve a profitable transaction. The dressing percentage of an animal varies with the type, age, conformation, quality, and finish or condition.

Considerable stress should be placed on the probable outcome of an animal on the block. However, high finish does not always indicate that an animal will be profitable from the block standpoint. This is dependent on the ultimate dressing percentage. An animal to dress well should be square, low set, deep, broad in the body, compact and smooth, with a relatively large amount of the weight placed in the regions which sell for the highest market price. A good feeding animal should have capacity, yet with all it should be trim and free from excess offal. A heavy-shouldered animal, low in the back, and inclined to be paunchy will not dress a high percentage. Such a condition is usually indicative of flat ribs, a large paunch, and excess weight in the waste or cheap parts. Animals making the highest dressing percentage conform to the block or rectangular, low set, broad, arched rib, deep-bodied sort.

Marbling of Meat.—The marbling of meat is indicative of the interspersion of fat between the muscular tissues.

This condition is reached when an animal is properly finished for the block. While one animal or one breed may marble

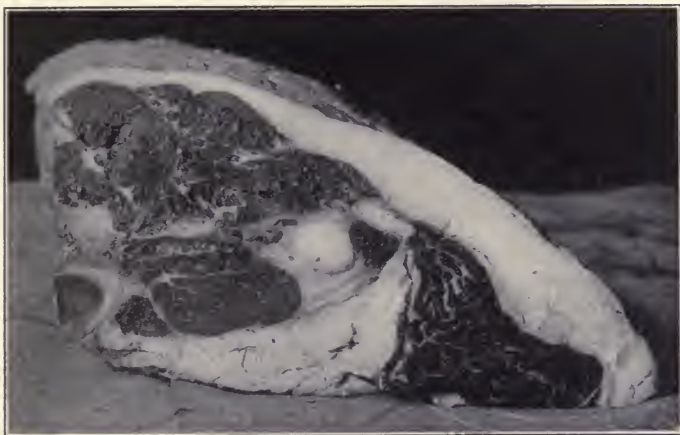


FIG. 96.—Porterhouse cut, showing marbling and desirable amount of fat covering.



FIG. 97.—Prime or standing rib, including portion between loin and chuck.

better than another, the condition is necessary to give meat its best quality. In conjunction with the marbling there

should be a uniform pad of fat over the outside of the body to protect the meat and retain its succulence when in the dressed-carcass condition. It requires in addition a certain amount of fatty tissue to add succulence and flavor to meat.

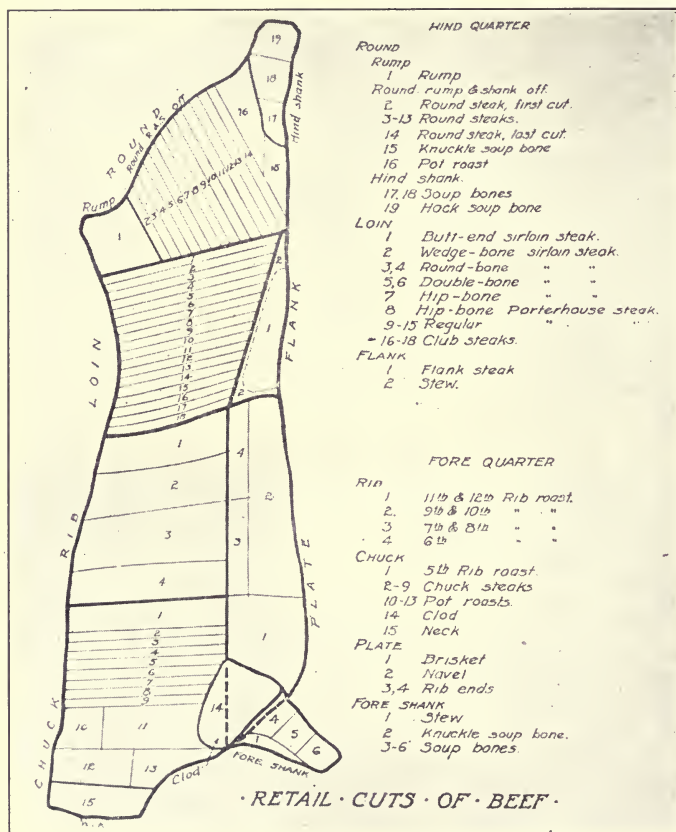


FIG. 98.—Retail cuts of beef. (Courtesy Illinois Agricultural Experiment Station.)

Percentage of Different Cuts of Beef.—Judging a beef animal accurately for a given purpose necessitates a knowledge of the location and relation of the various regions of the animal. These regions are defined by certain rather uni-

versal market terms which are designated in the following tables. While the way in which a carcass is cut may influence the value of the various market cuts, the value of the sum total will not be materially altered. Most every large city has its method of cutting a beef carcass for wholesale and retail purposes.

The following table is a record of results obtained from a cutting test and shows the percentage of "Chicago cut" meat with square-cut chucks. This shows the different cuts which are obtained from a carcass and the proportionate amount of each obtained, based on the total weight:

Cuts.	Per cent.
Chucks.	28.00
Rounds	23.00
Navel	8.00
Flanks	2.00
Flank steaks	.50
Kidney.	.25
Ribs	10.00
Loins	15.00
No. 2 suet	.50
No. 1 suet	3.00
Shanks	4.00
Brisket	5.00
Necks	.75
Total	100.00

It is thus seen from this table that the two most valuable parts, the loins and ribs, constitute only one-fourth of the total weight of the carcass. The rounds and chucks each constitute approximately one-fourth the total weight of the carcass, leaving the other one-fourth to be distributed among the lowest priced cuts which include the navel, flanks, shanks, neck, and brisket.

The following table shows in a more condensed form the percentage of the parts of the beef animal grouped more nearly according to their market value. This table is representative of the cuts made Philadelphia style:

Cuts.	Per cent.
Rump and round	34.00
Rattler (Chuck, plate, brisket and shank)	44.00
Ribs and loins	22.00
Total	100.00



FIG. 99.—Sirloin or loin end.

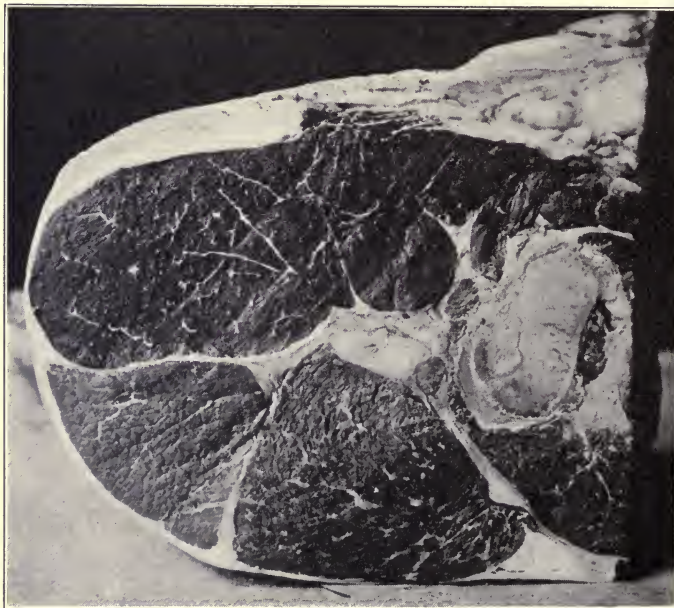


FIG. 100.—Round representing the principal thigh cut.

This grouping represents three rather distinct portions of the beef animal. The rattler which includes the chuck, plate, brisket, and shank, includes the cheaper and less desirable



FIG. 101.—Chuck cut taken off between fifth and sixth ribs. (Photograph by author.)

parts of the animal. The rump and round, combined constitute about one-third the total weight, while the ribs and loins combined constitute slightly less than one-fourth

of the total weight. It is thus seen that the proportionate amounts of the parts designated in the two tables vary somewhat with the method of making the cuts. Based on the universal practice of cutting meat, the former table represents more nearly the usual method of preparing or cutting the beef animal for block-distribution purposes.

Determination of Age.—Like the horse, the age of cattle can be determined by observing the eruption and appearance of the milk and permanent incisor teeth. While the age can thus be determined very satisfactorily, it is only in rather exceptional instances that the teeth are used as an index in arriving at the age attained. The teeth of cattle are some-



FIG. 102.—Chucks, showing some of the cheaper cuts of beef.
(Photograph by author.)

what different from those of the horse, as the incisors, eight in number, appear only in the lower jaw. The teeth are not firmly imbedded in the jaw as in the horse, but are rather set in cartilage, so as to allow of rather free movement. As the teeth are not opposed by incisors in the upper jaw, this is necessary. Instead of having teeth in the upper jaw, it is provided with a pad or cushion for crushing the feed when opposed by the incisors in the lower jaw.

The two sets of incisor teeth appear in cattle in the following order, and it is by this eruption and appearance that the age may be determined up to about the ten-year stage. At birth the calf usually has four incisors, the third pair appearing about the tenth or twelfth day, and the corner pair from the latter time up to the thirtieth day or there-

abouts. The permanent central incisors appear from eighteen to twenty months, the first intermediates at twenty-four to thirty months, the second intermediates at thirty-six to forty-two months, and the corners from forty-five to fifty-four months. These are designated as the one, two, three, and four-year stages.

At five years the central incisors have begun to wear and at six years they are worn level. At this stage both pairs of the intermediates are partly worn and the corners have commenced to wear. At seven years the first pair of intermediates is worn completely and the second pair is worn considerably. When the eight-year stage is reached the tables of all the teeth are worn level and a concavity appears in the central incisors. At nine years this concavity appears in the first intermediates and at ten years in the second intermediates.

From this stage the age may be determined by the general condition of the animal, by the general alterations which occur in the teeth, or by the horns as described in the following paragraph:

Indication of Age by Horns.—The age of cattle possessing horns may be determined by the rings which appear at the base. The first ring appears at about three years of age. Each year a new ring develops, thus indicating the age by adding two to the number of rings which are in evidence. One ring, for example, indicates a three-year-old and two rings a four-year-old animal.

Structural Form and Examination.—The following attributes of form are of special significance in determining the qualifications of beef-producing animals. These apply with equal significance to both breeding and fat animals, with the exception of the sex characteristics, which should be developed in the former.

HEAD.—The head of the beef animal should be broad, deep, and have length in proportion, this being a good indication of thriftiness and feeding capacity. There should be good width between the eyes, thus showing intelligence. The angle of the jaw should be wide to allow free respiratory action. The head should be neat, trim, and the general

expression should indicate intelligence. A well-formed head is indicative of various attributes such as quality, feeding capacity, intelligence, breed type, and general refinement.

Eyes.—The eyes should be large, clear, and bright, this being a good indication of constitution, healthfulness, and breeding capacity. A small, sunken eye indicates low vitality and possibly disease.

Ears.—The ears should be medium in size and covered with fine, mossy hair. A medium-sized ear with fine, silky hair is indicative of quality, the opposite condition showing coarseness and lack of refinement.

Horns.—In horned breeds the horns should be fine in texture and free from a rough, dry, scaly condition.

Poll.—The width of the poll is dependent upon the natural presence or absence of horns. In polled breeds there is a tendency for the poll to assume a comparatively narrow, pointed condition.

Muzzle.—The muzzle should be broad and deep, as the size of it is indicative of constitution and capacity. A small, pointed muzzle is characteristic of an animal with low vitality and faulty breeding or feeding qualities. The nostrils should be large and open. The muzzle should broaden toward the extremity, such a condition indicating strong, vigorous breeding and feeding capacity.

NECK.—The neck should be short, broad, deep, and blend evenly and smoothly into the shoulders. Coarseness indicated by the presence of loose folds about the neck, dewlap or brisket is very objectionable. Unnecessary appendages of this character decrease the dressing percentage. The junction of the neck with the head should be smooth, the throat-latch being free from loose folds of skin. The junction at the neck should show smoothness and refinement. The crest should be absent in the female.

FOREQUARTERS.—The forequarters include the shoulders, shoulder vein, brisket, feet, and legs. The shoulders should be broad, smooth, and evenly laid in, there being no tendency to openness or a light-fleshing quality. Undue prominence of the shoulder-blades and the resulting open formation indi-

cate coarseness of quality. The smoothness and compactness of the top of the shoulder should likewise characterize the sides of same. The shoulders should blend evenly into the body proper, there being no tendency to depressions in the crops or flanks.

Shoulder Vein.—The shoulder vein should be full, thus giving smoothness of neck and shoulder development.

Brisket.—The brisket should be trim and neat, extending forward sufficiently to give the animal proper conformation, although this should not be extreme.

Legs.—The legs should be short, straight, and strong, with dense, hard bone, this condition indicating quality. They should set well apart and directly under the body. If they are set too close together it is indicative of a narrow chest and thus weak constitution and vitality. The feet should be medium in size, and the animal should stand well up on the toes.

Body.—The body proper includes the chest, back, ribs, loin, underline, and flanks. The *chest* should be broad, deep, and full. There is a marked difference in the chest of the beef and the dairy animal. In the former, the width should be the same through the crops and in the flank region, the latter having an angular formation at the top, thus necessitating greater width on the floor to obtain the desired chest capacity. There should be no depression whatever back of the shoulders. Full conformation in this region gives the beef animal the most desirable attainments, from the butcher's standpoint. A high *flank* is objectionable. Any noticeable decrease in the body in the chest or flank region is indicative either of low vitality or undesirable feeding qualities.

The value of a breeding or feeding animal is influenced largely by the development of the *back* because of the relatively large proportion of high-priced cuts coming from it. It should be straight, broad, and uniformly carried out from the shoulders to the hindquarters. The amount and character of natural flesh is important. The back should be characterized by smooth, firm, uniform covering throughout. A low, weak back is objectionable, as such a condition is associated with a lack of form and symmetry in general

and otherwise indicates a low dressing percentage. Often an animal so characterized is paunchy, this condition being doubly antagonistic to beef-productive capacity.

The *ribs* should be long, arched, and thickly and smoothly fleshed. They should be well sprung, coming squarely from the back *bone* and extend low to give depth of body and its accompanying capacity. Flat ribs are very objectionable, usually being associated with animals of low vitality and unthriftiness.

The *loin* contains the highest-priced cuts of the beef carcass. It should be broad, long, level, and thickly fleshed, thus giving the largest proportionate amount of meat from this region.

The *underline* should be straight, trim, and parallel with the top line. The *flanks* should be full, even, and extend low.

HINDQUARTERS.—The hindquarters include the hips, rump, thighs, twist, and legs. The *hips* should be broad, smooth, and level. The *rump* should be long, wide, the tail head smooth and level, and the pin-bones wide apart. The animal should be smooth and firm throughout this region. The *thighs* should be broad, deep, and full, carrying well down to the hocks. Long, narrow, incurving thighs in the beef animal are seriously objectionable. Such an animal should possess just the opposite condition, being fully developed from every viewpoint. The *twist* should be deep and full. A high twist is indicative of inferior fleshing qualities. A short hindquarter with a drooping rump, and rough, prominent development otherwise is extremely objectionable.

The *legs* should be wide apart, straight, short, and the shanks fine and smooth. The bone should possess quality, as indicated by density and texture. The *feet* should be of medium size, well shaped, and the animal should stand well up on the toes.

SCORE CARD FOR BEEF CATTLE.

GENERAL APPEARANCE—40 Points.		Perfect score.
<i>Weight:</i> score according to age		6
<i>Form:</i> straight topline and underline; deep, broad, low set, stylish		10
<i>Quality:</i> firm handling, hair fine; pliable skin; dense bone; evenly fleshed		10
<i>Condition:</i> deep, even covering of firm flesh, especially in regions of valuable cuts		10
<i>Temperament:</i> lymphatic, inclined to fatten		4
HEAD AND NECK—7 Points.		
<i>Muzzle:</i> broad; mouth large; jaw wide; nostrils large		1
<i>Eyes:</i> large, clear, placid		1
<i>Face:</i> short, quiet expression		1
<i>Forehead:</i> broad, full		1
<i>Ears:</i> medium size, fine texture		1
<i>Horns:</i> fine texture, oval, medium size		1
<i>Neck:</i> thick, short; throat clean		1
FOREQUARTERS—8 Points.		
<i>Shoulder vein:</i> full		2
<i>Shoulder:</i> covered with flesh, compact on top, smooth		2
<i>Brisket:</i> advanced, breast wide		1
<i>Devlap:</i> skin not too loose and drooping		1
<i>Legs:</i> straight, short; arm full; shank fine, smooth		2
BODY—32 Points.		
<i>Chest:</i> full, deep, wide; girth large; crops full		4
<i>Ribs:</i> long, arched, thickly fleshed		8
<i>Back:</i> broad, straight, smooth, even		10
<i>Loin:</i> thick, broad		8
<i>Flank:</i> full, even with underline		2
HINDQUARTERS—13 Points.		
<i>Hips:</i> smoothly covered; distance apart in proportion with other parts		2
<i>Rump:</i> long, wide, even, tail head smooth, not patchy		2
<i>Pin-bones:</i> not prominent, far apart		1
<i>Thighs:</i> full, deep, wide		2
<i>Twist:</i> deep, plump		2
<i>Purse:</i> full, indicating fleshiness		2
<i>Legs:</i> straight, short, shank fine, smooth		2
Total		100

Breed Characteristics.—The several breeds of beef and dual purpose cattle are all characterized by rather significant marks of size, color, form, and adaptation. The most significant points are described in the following:

Shorthorn.—The Shorthorn breed of cattle originated in the counties of York, Durham, and Northumberland, England. The breed is one of the most interesting historically of any of the beef breeds. The breed is characterized by

three distinct colors, red, white, and roan. Specimens of the breed may be solid red, solid white, or a combination of the two, forming large red-and-white body colors, the former predominating, or an intermingling of these two colors, thus giving the characteristic roan. The shades of roan vary from light to dark. The weight of mature males ranges from 1800 to 2200 pounds on the average, although these weights are often exceeded. The horns are comparatively short, usually curving forward and slightly downward. The conformation of the animal adheres closely to the beef type,



FIG. 103.—Shorthorn bull.

although there are two rather sharply defined types. The Scotch type of Shorthorn conforms closest to the beef type, the Bates type representing an animal of both beef and milk-producing qualities. The Shorthorn ranks high in quality, and docility, and “nicks” well with common cattle. The breed is adapted especially to rich pasture lands, although it has a wide adaptation. The breed shows unusual refinement and breed character.

Polled Durham.—The Polled Durham breed of cattle is designated as single or double standard, according to origin. The aim is to breed in them all of the characteristics of Shorthorns excepting the horns. The head is the

same as that of the Shorthorn except the poll, which is gently rounded at the crown. The single standard Shorthorn was the first type of hornless Shorthorn in America. The breed is the result of crossing pure-bred Shorthorn bulls on native cows of hornless character. Animals bred in this way are eligible for registration only in the Polled Durham Herdbook. Cattle of this breeding, while having Shorthorn characteristics, do not possess strong Shorthorn qualifications.

Double Standard Polled Durhams are descendants from the cow, Oakwood Gwynne the Fourth, which was a regis-



FIG. 104.—Polled Durham bull.

tered Shorthorn cow. This cow was practically polled and when bred to Seventh Duke of Hillhurst, produced twin female calves with polled heads. Animals descended from this origin are known as double standard, as they are eligible to registration, both in the Polled Durham Herdbook and the American Shorthorn Herdbook. Animals of the Polled Durham breed should have the color and other characteristics of the Shorthorn breed. While not bred to as high state of perfection as the breed from which they descended, some excellent individuals have been produced, showing the true polled character.

Aberdeen-Angus.—The Aberdeen-Angus breed originated in Scotland in the counties of Aberdeen, Kincardine, and Forfar. The breed is characterized by the absence of horns and a solid black color, with slight exceptions as given in the standard of excellence. The weight of the males ranges from 1700 to 2000 pounds on an average, many individuals exceeding this weight. In general conformation the breed is quite typical of the characteristics of the beef animal. The form is inclined to be more cylindrical than in the Shorthorn or Hereford. In quality and dressing percentages the breed ranks high, having obtained numerous prizes,

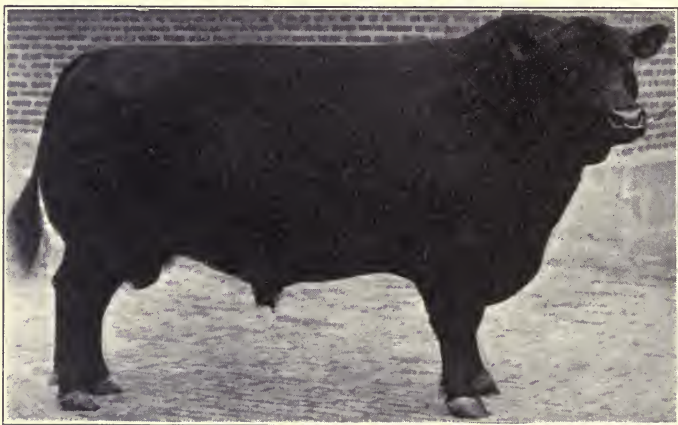


FIG. 105—Aberdeen-Angus bull.

both on foot and on the block for the possession of these qualifications. The form is compact, low set, and animals of the breed are characterized by a strong, vigorous constitution. The breed ranks only fair in milking qualities, not comparing favorably with the Shorthorn in this respect. The possession of the unusually well-developed beef-producing qualities has been antagonistic to this end. In character and general refinement the breed ranks high. The disposition is inclined to be nervous. The body of the Aberdeen-Angus has unusual depth, and the breed as a whole possesses unusually early maturing qualities.

STANDARD OF EXCELLENCE AND SCALE OF POINTS FOR ABERDEEN-
ANGUS CATTLE.

BULL.

	Points.
COLOR.—Black. White is objectionable, except on the underline behind the navel, and there only to a moderate extent; a white scrotum is most undesirable	3
HEAD.—Forehead broad; face slightly prominent, and tapering toward the nose; muzzle fine; nostrils wide and open; distance from eyes to nostrils of moderate length; eyes mild, full and expressive, indicative of good disposition; ears of good medium size, well set and well covered with hair; poll well defined, and without any appearance of horns or scurs; jaws clean	10
THROAT.—Clean, without any development of loose flesh underneath	3
NECK.—Of medium length, muscular, with moderate chest (which increases with age), spreading out to meet the shoulders, with full neck vein	3
SHOULDERS.—Moderately oblique, well covered on the blades and top, with vertebræ or backbone slightly above the scapula or shoulder-blades, which should be moderately broad	6
CHEST.—Wide and deep; also round and full just back of elbows	10
BRISKET.—Deep and moderately projecting from between the legs, and proportionately covered with flesh and fat	4
RIBS.—Well sprung from the backbone, arched and deep, neatly joined to the crops and loins	8
BACK.—Broad and straight from crops to hooks; loins strong; hook-bones moderate in width, not prominent, and well covered; rumps long, full, level, and rounded neatly into hindquarters	10
HINDQUARTERS.—Deep and full; thighs thick and muscular, and in proportion to hindquarters; twist filled out well in its "seam" so as to form an even, wide plane between thighs	8
TAIL.—Fine, coming neatly out of the body on a line with the back and hanging at right angles to it	3
UNDERLINE.—Straight as nearly as possible; flank deep and full	4
LEGS.—Short, straight, and squarely placed; hindlegs slightly inclined forward below the hocks; forearms muscular; bones fine and clean	4
FLESH.—Even and without patchiness	4
SKIN.—Of moderate thickness and mellow touch, abundantly covered with thick, soft hair. (Much of the thriftiness, feeding properties, and value of the animal depends upon this quality, which is of great weight in the grazier's and butcher's judgment. A good "touch" will compensate for some deficiencies of form. Nothing can compensate for a skin hard and stiff. In raising the skin from the body it should have a substantial, soft, flexible feeling, and when beneath the outspread hand it should move easily as though resting on a soft, cellular substance, which, however, becomes firmer as the animal ripens. A thin, papery skin is objectionable, especially in a cold climate)	10
GENERAL APPEARANCE.—Elegant, well bred and masculine. The walk square, the step quick, and the head up	10

Perfection 100

When bulls are exhibited with their progeny in a separate class, add 25 counts for progeny.

Cow.

	Points.
COLOR.—Black. White is objectionable, except on the underline behind the navel, and there only to a moderate extent	2
HEAD.—Forehead moderately broad, and slightly indented; tapering toward the nose; muzzle fine; nostrils wide and open; distance from eyes to nostrils of moderate length; eyes full, bright and expressive, indicative of good disposition; ears large, slightly rising upward, and well furnished with hair; poll well defined, and without any appearance of horns or scurs; jaw clean	10
THROAT.—Clean, without any development of loose flesh underneath	3
NECK.—Of medium length, spreading out to meet the shoulders, with full neck vein	3
SHOULDERS.—Moderately oblique, well covered on the blades and top, with vertebræ or backbone slightly above the scapula or shoulder-blades, which should be moderately broad	6
CHEST.—Wide and deep; also round and full just back of elbows.	10
BRISKET.—Deep and moderately projecting from between the legs and proportionately covered with flesh and fat	4
RIBS.—Well sprung from the backbone, arched and deep, neatly joined to the crops and loins	8
BACK.—Broad and straight from crops to hooks; loins strong; hook-bones moderate in width, not prominent, and well covered; rumps long, full, level, and rounded neatly into hindquarters	10
HINDQUARTERS.—Deep and full; thighs thick and muscular, and in proportion to hindquarters; twist filled out well in its "seam" so as to form an even plane between thighs	8
TAIL.—Fine, coming neatly out of the body on a line with the back and hanging at right angles to it	3
UDDER.—Not fleshy, coming well forward in line with the body, and well up behind; teats squarely placed, well apart and of good size	8
UNDERLINE.—Straight as nearly as possible; flank deep and full	4
LEGS.—Short, straight, and squarely placed; hindlegs slightly inclined forward below the hocks; forearms muscular; bones fine and clean	3
FLESH.—Even and without patchiness	3
SKIN.—Of moderate thickness and mellow touch, abundantly covered with thick, soft hair. (Much of the thriftiness, feeding properties, and value of the animal depends upon this quality, which is of great weight in the grazier's and butcher's judgment. A good "touch" will compensate for some deficiencies of form. Nothing can compensate for a skin hard and stiff. In raising the skin from the body it should have a substantial, soft, flexible feeling, and when beneath the outspread hand it should move easily as though resting on a soft, cellular substance which, however, becomes firmer as the animal ripens. A thin, papery skin is objectionable, especially in a cold climate)	10
GENERAL APPEARANCE.—Elegant, well bred, and feminine. The walk square, the step quick, and the head up	5
Perfection	100

In judging heifers, omit No. 12 and add 3 counts to No. 15 and 5 counts to No. 17.

Hereford.—The Hereford breed is characterized by an unusually striking combination of colors. The body proper is red; the head, top of neck, shoulders, over the crops, lower part of the neck, brisket, floor of the body, the feet, legs and switch are more or less characterized by white. This varies somewhat. A medium shade of red is most desirable, light colors being objectionable. The general tendency is toward these marks, however, the principal variation in color is in the regions mentioned other than the head. This is one of the largest of the beef breeds, the weight of



FIG. 106.—Hereford bull.

males being from 1800 to 2400 pounds. The breed ranks high as a meat producer, although there is some tendency to lack of development in the hindquarters especially. In milk production it is average. Herefords graze well on rather sparse pasture and in this respect they are superior to most of the other recognized beef breeds. The head of the Hereford is square and broad, showing marked character and refinement. The horns are fine, waxy, rather prominent, and add much to the natural beauty of the breed. The disposition of the Hereford is more nervous than the Short-horn and less so than the Aberdeen-Angus. The quality is usually superior, as shown in the condition of the hide, hair,

and bone development. The constitution and vigor of the Hereford is a significant characteristic of the breed withstanding the changes of climate on the range to a remarkable degree.

STANDARD OF EXCELLENCE AND SCALE OF POINTS FOR HEREFORD CATTLE.

	Points.
COLOR.—Medium, deep, rich red, with white head, breast, belly, crest, switch, and ankles	5
HEAD.—Forehead broad and prominent, face short, slightly tapering toward nose; muzzle full; nostrils wide and open; eyes large and expressive; ears of medium size, well set and well covered with hair; horns of medium size; even color, coming from head at right angles, set on level with crop, back and tail head, curving forward and downward	8
THROAT.—Clean, without any excessive development of loose flesh or fat underneath	2
NECK.—Short, neat, spreading out to meet shoulders, with full neck vein, free from loose skin. (Males: neck muscular, with full crest, according to age)	2
SHOULDERS.—Straight, round, full, smooth and well covered; top of shoulder-blades slightly below vertebræ, good width on top	6
CHEST.—Wide, deep, round and full just back of shoulders	6
BRISKET.—Deep and wide, moderately projecting, free from flabbiness	2
RIBS.—Well sprung from backbone, close together, long and arched, carrying the full width of shoulders and deeply and smoothly covered	8
BACK AND LOIN.—Broad, straight and heavily covered from crops to hooks, hooks moderately wide and well covered	10
RUMP.—Long, wide, smooth and well covered, carrying width in proportion to width of back and hooks, joining smoothly into quarters	5
QUARTERS.—Long, straight, muscular, full, deep and thick	4
THIGH AND TWIST.—Full and thick, carried well down to hocks	3
TAIL.—Tail head level with line of back, tail dropping at right angles to back line	1
UNDERLINE.—Straight, flanks deep and full	3
LEGS.—Short, straight and squarely placed, perpendicular both from side and end view, forearm muscular, bones strong and clean	6
FLESH.—Deep, firm, smooth, uniform covering of all parts and free from patchiness	8
SKIN.—Of moderate thickness, mellow, pliable and loose, abundantly covered with long, thick, silky hair	6
GENERAL APPEARANCE.—Vigorous, compact and symmetrical. Bulls masculine and possessing an abundance of quality and predominant breeding characteristics. Females matronly, roomy, smooth, showing quality and feminine appearance throughout	10
WEIGHT.—Age and condition to be considered	5
Total	100

Polled Herefords.—The Polled Hereford breed is of two types. These types are characterized by the terms double standard and single standard. The former type sprang directly from the pure bred horned Hereford. A double standard Polled Hereford is any pure bred Hereford naturally polled and whose ancestry will permit its registration both in the American Polled Hereford Record and in the American Hereford Record. It is from this double registration that



FIG. 107.—Polled Hereford bull.

the term double standard is obtained. The term does not indicate as is sometimes supposed, that an animal has both a Polled sire and a Polled dam. It is necessary, however, for both sire and dam to be pure bred and registered in the American Hereford Record.

The single standard Polled Hereford is a distinct type which can be registered only in the single standard Polled Hereford Record and not in the American Hereford Record. This record is distinct from the double standard Polled Here-

ford Record, although it is owned and controlled by the same breeders association.

The single standard Polled Hereford is simply a high grade naturally "muley" Hereford animal, owing its polled head to a cross of a Polled breed several generations removed. None of such animals can become double standard, nor can they be recorded in the double standard Polled Hereford Record or the American Hereford Record. The single standard should be judged in the same way as the double standard. However, this type of the breed is naturally not



FIG. 108.—Polled Hereford cow.

as well developed as the double standard, springing from pure horned Herefords on both sides.

While not as highly developed as the horned Herefords, the breed has had quite a remarkable growth, there being in 1915 over 1500 herds distributed in most of the States in the Union. The Association has no official score card and scale of points. The breed should be judged by the score card used by the American Hereford Breeders Association, substituting for the points given to horns an equivalent number of points for a smooth, well-shaped poll.

Galloway.—The Galloway breed originated in Scotland in the counties of Wigton, Ayr, and Dumfries. The original Galloway was characterized by a number of objectionable points, principally in the lack of rib development and early maturing qualities. The modern type of Galloway, however, has been improved very much in these respects, representing a comparatively compact, low set, thick-fleshed beef animal. The weight of the males ranges from 1700 to 2000 pounds on the average, cows weighing considerably less. This is one of the smallest breeds of beef cattle not ranking with the



FIG. 109.—Galloway bull.

former three described in this respect. The breed is polled. The standard color of the Galloway is solid black, although white frequently occurs. The coat of hair is exceedingly long, thick, curly, mossy, and evenly distributed, and for this reason the hide is used in the manufacture of robes. The quality is without objection, the bone being fine and the skin mellow and elastic. The constitution is good, the hardiness of the breed being especially significant in its adaptation to colder, less protected conditions than the other beef breeds. The Galloway ranks well in its meat-producing qualities.

STANDARD OF EXCELLENCE FOR GALLOWAY CATTLE.

- COLOR.**—Black, or black, with a brownish tinge. White markings on feet, ankles or legs, or on any portion of the body above the underline, are very objectionable.
- HEAD.**—Short and wide, forehead broad, crown wide and oval, not rising to a point. Any trace of scurs or horns debar an animal from registration. Face clean, muzzle broad, and nostrils large.
- EYE.**—Large and prominent.
- EAR.**—Moderate in length and broad, pointing forward and upward, with fringe of long hairs.
- NECK.**—Short, clean, and filling into the shoulder in such a manner as to make the neck and shoulder of fleshy animals appear moulded as one piece. The top of the neck in line with the back in a female, and in a male gradually rising with age.
- BODY.**—Deep, wide, well rounded, moderate in length and symmetrical.
- SHOULDERS.**—Broad, but well laid into body, joining smoothly; compact and deeply fleshed on top.
- RIBS.**—Deep and well sprung, crops deeply fleshed, making width of shoulders and body at ribs uniform.
- HOOK-BONES.**—Not prominent; in fleshy animals not visible.
- LOIN.**—Moderate in length, wide and deeply fleshed.
- HINDQUARTERS.**—Long, wide and well filled.
- RUMP.**—Straight, wide, carrying width of body out uniformly. Well filled with flesh.
- THIGHS.**—Broad as viewed from side, thick as viewed behind; straight and well let down at hock, rounded buttocks very objectionable.
- LEGS.**—Short and clean, with fine bone.
- TAIL.**—Set on straight and smoothly laid in with flesh at sides. A high tail-head very objectionable.
- SKIN.**—Mellow and moderate in thickness.
- HAIR.**—Soft and wavy, with mossy undercoat. Harsh or wiry hair is very objectionable. Curly hair, if soft, is not objectionable.

POINTS TO BE AVOIDED.

BY THE LATE JAMES BIGGAR, DALBEATTIE, SCOTLAND.

- Long, narrow head with light crown.
 Narrow, tapering muzzle.
 Long, drooping ears.
 Small, deep-set eyes.
 Small, light neck.
 Light, scraggy breast.
 High, narrow shoulders.
 Flatness behind shoulders.
 Light fore or back ribs.
 Square and prominent hook-bones.
 High or drooping rumps.
 Weak or slack loins.
 Rounded buttocks.
 Fleshy double thighs.
 Big, coarse bones.
 Thick, stiff skin.
 Hard, wiry hair without soft undercoat.

Sussex.—The Sussex breed of cattle is not of special significance in beef production in this country. The native home of the breed is in the county of Sussex, England. In this country interests were centered in this breed largely in Tennessee. The breed was first imported in 1884 by Mr. Overton Lea who maintained quite a large herd. Later other importations were made; however, the breed has not become important. The size is comparable to the largest breeds of beef cattle, the bulls attaining a weight equal to that of the recognized breeds. The color of the Sussex is deep red and it is characterized by horns of rather prominent development. The body is capacious and low set, and while ranking very favorably, the breed is not widely disseminated. The form of the Sussex is reasonably blocky, thus meeting the requirements of the typical beef animal to quite a marked degree. The quality is somewhat deficient, the head, neck and shoulder development especially showing an inclination to coarseness. The breed is fair in milk-producing qualities. Specimens of the breed graze well and mature early. The chief criticisms of the breed are its coarseness and lack of general refinement.

Dual Purpose Breeds.—The dual purpose breeds are characterized by a two-purpose function—the production of both meat and milk. Much has been said and written about the merits of these breeds, at times favorable and again unfavorable. While it is recognized that perfection of both meat and milk-giving attributes cannot be reached in the same animal, there is undoubtedly a place for the dual purpose breeds on the small farms especially. Under such conditions neither strict dairying nor beef production can be made a specialty. A combination of the two, although each showing comparatively lessened proficiency, seems to more fully meet the needs of the smaller and more isolated class of farmers. The three breeds of importance in helping to meet these requirements are characterized as follows:

Shorthorn (*Dual Purpose Type*).—The Shorthorn breed of cattle, formerly described under the beef type, is significant in having a strain or family in the breed having well-developed dual purpose characteristics. Animals partaking of these

qualities are often referred to as Bates-bred cattle because of the particular attention which this breeder gave to milk-giving characteristics in the breed. Shorthorns possessing the dual purpose functions do not have the beef-producing qualities which the specialized beef strains possess; however, they have a beef-producing conformation which is strikingly exhibited in the offspring. Although not as early maturing as the popular Scotch type of animals, the correlated functions of meat and milk production are very acceptable. In



FIG. 110.—Dual purpose Shorthorn cow.

England large numbers of dual purpose Shorthorns are bred because of their significant double-producing functions. Numerous creditable records have been made which indicate the possibility of developing Shorthorns in these two capacities. There is probably no other beef breed which will equal the Shorthorn in dairy performance, although these qualities are not equally developed in all animals. In selecting Shorthorns for milk and beef production, special attention should be given to the type and breeding records. The incorporation of Scotch or other blood with specific meat-producing tendencies would of necessity unbalance the

dual purpose function. The general Shorthorn character should be kept in mind in judging dual purpose animals of the breed.

Red Polled.—The Red Polled breed is the most significant breed which has been developed entirely for dual purpose production. It is a native of Norfolk and Suffolk counties, England, having become disseminated rather widely in certain states in this country. The breed is characterized by a solid red color, except white is permissible up to the navel and on the switch. The breed possesses a polled head and a very



FIG. 111.—Red Polled bull.

well-balanced dual purpose capacity. The type of this breed varies considerably, this being a condition difficult to govern in any dual purpose animal, not necessarily because of the breed but because of the likelihood of different standards being maintained by various breeders. The weight of mature males varies from 1800 to 2000 pounds on the average. As would be expected in a dual purpose animal the form is usually not as deep, broad, or compact as in the special beef breeds. The Red Polled is somewhat lacking in natural flesh and in the development of the hindquarters. The quality is regarded as fair and the temperament somewhat nervous. The chief objections to

the breed are the variation in type, the lack of uniform udder development, and of good fleshing qualities. The teats are objectionable because of the extreme variation in size. A better defined standard toward which breeders could work would overcome a great many of the present faults of the breed, and aid in its distribution.

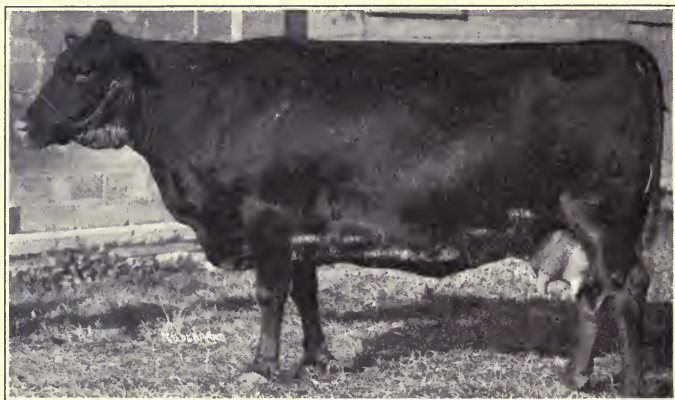


FIG. 112.—Red Polled cow.

STANDARD OF EXCELLENCE AND SCALE OF POINTS FOR RED POLLED CATTLE.

BULL.

	Points.
GENERAL DESCRIPTION. —Strong, impressive, low set, and of good carriage. Weight 1800 pounds to 2000 pounds when mature and finished.	
COLOR. —Any shade of red, the switch of tail may be white, with some white running forward to the navel. Nose of a clear flesh color. Interior of ears should be of a yellowish, waxy color	2
<i>Objections:</i> An extreme dark or an extreme light red is not desirable. A cloudy nose or one with dark spots.	
HEAD. —Wide, strong and masculine, relatively short. Poll stronger and less prominent than in cow. Ears of medium size and well carried; eyes prominent; muzzle wide with large nostrils	12
<i>Objections:</i> Long, narrow, or lacking in masculine character.	
NECK. —Of medium length, full crest, of good thickness, strong, of masculine appearance	5
SHOULDER. —Of medium thickness and smoothly laid, coming up level with line of back	8
Carried forward	27

	Points.
Brought forward	27
<i>Objections:</i> Shoulder too prominent, giving the appearance of weakness in heart girth, shoulder protruding above line of back.	
CHEST.—Broad and deep, insuring constitution. Brisket prominent and coming well forward	12
BACK AND RIBS.—Back medium long, straight and level from withers to setting on of tail, moderately wide, with spring of ribs starting from the backbone, giving a rounding appearance, with ribs flat and fairly wide apart	14
<i>Objections:</i> Front ribs too straight, causing depression back of shoulders. Drop in back or loin below the top line.	
HIPS.—Wide, rounding over the hooks, and well covered	3
QUARTERS.—Of good length, full, rounding and level; thighs wide, and moderately full, deep	6
<i>Objections:</i> Prominent hooks and sunken quarters.	
TAIL.—Tail-head strong and setting well forward, long and tapering to a full switch	2
LEGS.—Short, straight, squarely placed, medium bone	3
<i>Objections:</i> Hocks crooked; legs placed too close together.	
RUDIMENTARIES.—Large, wide apart, and placed well forward	12
Position of rudimentaries	6
<i>Objections:</i> Rudimentaries placed back on scrotum, or placed too close together, indicating tendency to transmit badly formed udders.	
HIDE.—Loose, mellow, flexible, inclined to thickness, with a good, full coat of soft hair	5
<i>Objections:</i> Thin, papery skin or wiry hair.	
CONDITION.—Healthy, moderate to liberal flesh evenly laid on; glossy coat; animal presented in full bloom	10
Total	100

DISQUALIFICATIONS.

Scurs, or any evidence whatever of a horny growth on the head. Any white spots on body above lower line or brush of tail.

Cow.

	Points.
GENERAL DESCRIPTION.—Medium wedge form, low set, top and bottom lines straight except at flank; weight 1300 pounds to 1500 pounds when mature and finished.	
COLOR.—Any shade of red. The switch of tail and udder may be white with some white running forward to the navel. Nose of a clear flesh color. Interior of ears should be of a yellowish, waxy color	2
<i>Objections:</i> An extreme dark or an extreme light red is not desirable. A cloudy nose or one with dark spots.	
Carried forward	2

	Points.
Brought forward	2
HEAD.—Of medium length, wide between the eyes, sloping gradually from above eyes to poll. The poll well defined and prominent, with a sharp dip behind it in center of head. Ears of medium size and well carried. Eyes prominent; face well dished between the eyes. Muzzle wide, with large nostrils	6
<i>Objections:</i> A rounding or flat appearance of the poll. Head too long and narrow.	
NECK.—Of medium length, clean cut, and straight from head to top of shoulder, with inclination to arch when fattened, and may show folds of loose skin underneath when in milking form	3
SHOULDER.—Of medium thickness and smoothly laid, coming up level with line of back	6
<i>Objections:</i> Shoulder too prominent, giving the appearance of weakness in heart girth, shoulder protruding above line of back.	
CHEST.—Broad and deep, insuring constitution. Brisket prominent and coming well forward	10
BACK AND RIBS.—Back medium long, straight and level from withers to setting on of tail, moderately wide, with spring of ribs starting from the backbone, giving a rounding appearance, with ribs flat and fairly wide apart	14
<i>Objections:</i> Front ribs too straight, causing depression back of shoulders. Drop in back or loin below the top line.	
HIPS.—Wide, rounding over the hooks, and well covered	3
QUARTERS.—Of good length, full, rounding and level; thighs wide, roomy, and not too meaty	6
<i>Objections:</i> Prominent hooks and sunken quarters.	
TAIL.—Tail-head strong and setting well forward, long and tapering to a full switch	2
LEGS.—Short, straight, squarely placed, medium bone	3
<i>Objections:</i> Hocks crooked; legs placed too close together.	
FOREUDDER.—Full and flexible, reaching well forward, extending down level with hindudder	10
HINDUDDER.—Full and well up behind	10
TEATS.—Well placed, wide apart, and of reasonably good size	4
<i>Objections:</i> Lack of development, especially in forward udder. Udder too deep, "bottle-shaped," and teats too close together. Teats unevenly placed and either too large or too small.	
MILK VEINS.—Of medium size, full, flexible, extending well forward, well retained within the body; milk wells of medium size	6
HIDE.—Loose, mellow, flexible, inclined to thickness, with a good, full coat of soft hair	5
<i>Objections:</i> Thin, papery skin or wiry hair.	
CONDITION.—Healthy, moderate to liberal flesh evenly laid on; glossy coat; animal presented in full bloom	10
Total	100

DISQUALIFICATIONS.

Scurs, or any evidence whatever of a horny growth on the head.
Any white spots on body above lower line or brush of tail.

Devon.—The Devon breed is a native of Devon and Somerset counties England. It is characterized by a solid red color except for white around the udder and scrotum, white being permissible in neither sex in front of the navel. The shade of red varies from light to dark, the latter being preferable. The muzzle should be flesh-colored, and the hair around the eyes and muzzle a creamy tint. The weight of the males ranges from 1500 to 2000 pounds; however, the latter is somewhat excessive for average conditions. The horns are



FIG. 113.—Devon cow.

rather long, spreading and upturned. The size of the horns is medium, the base light and waxy, and the extremities are of a darker shade. The form of the Devon is rather low set, the body deep, the ribs well sprung, and the heart girth usually well developed. The breed is usually very refined, and it possesses unusual activity, which is manifested especially in the oxen quite generally used throughout the New England States. The chief faults with the breed are the lack of size, early maturity, and uniform milk-giving capacity. The distinctive breed attributes are the color, horns, refinement, and activity. More size would be acceptable, but

breeders contend that to increase it would injure the quality. While the breed is quite widely disseminated it is not regarded as important except under special localized conditions.

STANDARD OF EXCELLENCE AND SCALE OF POINTS FOR DEVON CATTLE.

BULL.

	Points.
HEAD.—Masculine, full and broad, tapering toward the nose, which should be flesh-colored; nostrils high and open, muzzle broad; eyes full and placid and surrounded with flesh-colored ring; ears of medium size and thickness; horns medium size, growing at right angles from the head, or slightly elevated, waxy at the base, tipped with a darker shade	10
CHEEK.—Full and broad at root of tongue; throat clean	2
NECK.—Of medium length and muscular, widening from the head to the shoulders, and strongly set on	4
SHOULDERS.—Fine, flat, sloping, and well fleshed; arms strong, with firm joints	6
CHEST.—Deep, broad and somewhat circular	10
RIBS.—Well sprung from the backbone, nicely arched, deep, with flanks fully developed	10
BACK.—Straight and level from the withers to the setting on of the tail; loin broad and full; hips and rump of medium width and on a level with the back	20
HINDQUARTERS.—Deep, thick, and square	12
TAIL.—Well set on at a right angle with the back, tapering, with a switch of white or roan hair and reaching the hocks	2
LEGS.—Short, straight and squarely placed when viewed from behind, not to cross or sweep in walking; hoof well formed	4
SKIN.—Moderately thick and mellow, covered with an abundant coat of rich hair of a red color; no white spot admissible unless around the purse	8
SIZE.—Minimum weight at 3 years of age 1400 pounds	4
GENERAL APPEARANCE.—As indicated by stylish and quick movement, form, constitution, and vigor, and the underline as nearly as possible parallel with the line of the back	8
Total	100

Cow.

	Points.
HEAD.—Moderately long, with a broad indented forehead, tapering considerably toward the nostrils; the nose of a flesh color, nostrils high and open; the jaws clean; the eye bright, lively and prominent, and surrounded by a flesh-colored ring; throat clean; ears thin; the expression gentle and intelligent; horns matching; spreading and gracefully turned up, of a waxy color, tipped with a darker shade	8
Carried forward	8

	Points.
Brought forward	8
NECK.—Upper line short, fine at head, widening and deep at withers and strongly set to the shoulders	4
SHOULDERS.—Fine, flat and sloping, with strong arms and firm joints	4
CHEST.—Deep, broad, and somewhat circular in character	8
RIBS.—Well sprung from the backbone, nicely arched, deep, with flanks fully developed	8
BACK.—Straight and level from the withers to the setting on of the tail, loin broad and full, hips and rump of medium width, and on a level with the back	16
HINDQUARTERS.—Deep, thick, and square	8
UDDER.—Not fleshy, coming well forward in line with the belly and well up behind; teats moderately large, and squarely placed	20
TAIL.—Well set on at a right angle with the back, tapering with a switch of white or roan hair and reaching the hocks	2
LEGS.—Straight, squarely placed when viewed from behind, not to cross or sweep in walking; hoof well formed	4
SKIN.—Moderately thick and mellow, covered with an abundant coat of rich hair of a red color; no white spot admissible, except the udder	8
SIZE.—Minimum weight at 3 years of age, 1000 pounds	2
GENERAL APPEARANCE.—As indicated by stylish and quick movement, form, constitution and vigor, and the underline as nearly as possible parallel with the line of the back	8
Total	100

Class Characteristics.—From the standpoint of the judge, cattle may be divided into fat, feeder, stocker, young stock, or calves, and breeding animals which should possess the following characteristics:

Fat Cattle.—Fat cattle, which includes steers usually, are judged largely on their conformation, quality, and condition. This class of animals is further divided into grades, ranging from inferior to choice. A consideration of these grades, however, is not important at this time. While it is desirable for the fat animal to possess the same form as the highly developed breeding animal, their condition is of fundamental importance, especially from the market standpoint. Show ring fat cattle should possess faultless conformation and quality as well as condition. The inferior grades of fat cattle will, of necessity, possess serious faults. However, proper fitting will give them acceptable condition and value.

A steer may be ideal from the standpoint of form alone, but unless it is accompanied by the proper amount of condition or fat, it would be eliminated from a place in a fat class for this reason alone. The fat animal should be long, broad, deep and low set; the top and underline should be straight and parallel, the ribs well sprung, the loin broad and thick, the coupling short, and the twist well filled. The head should be broad and long, the muzzle prominent, the eyes large, clear and bright, the neck short and full and evenly blended with the shoulder.

The condition of a fat animal may be determined, first, by the general appearance, including symmetry and smoothness, and lastly by an examination of the tongue root, which should be full and firm. The flanks should be low and well filled and the cod or purse fully distended with fat. The back, loin and ribs should be deeply and uniformly covered. The amount of fat may be determined by passing the hand, palm down, along the back and sides which should be deeply and smoothly covered if the animal is in high condition. Rolls, ties or patches are objectionable to the extent of their occurrence. A true, well-balanced trim animal, with a minimum of waste is the ideal for the feeder and the butcher.

Feeders.—Feeder cattle should be of similar form to fat animals except for the condition or fat accumulation. Ordinarily such animals are lacking materially in fat, this depending, however, on the way in which they have been handled. Strictly speaking, an animal is a feeder until it has accumulated a sufficient amount of fat to place it in the most desirable market condition. Usually animals which class as feeders have only a limited amount of fat, the result of ordinary feeding or grazing conditions on the range or farm.

The lines of the animal should be straight, the form square, low set and it should possess quality and a sufficient amount of constitution to get the best results under feed lot conditions. Otherwise, constitution is not of special significance in an animal of this type. Feeders should possess all the requisites of the fat animal except for fat



FIG. 114.—Feeder cattle, showing thrift, quality, and outcome.

accumulation, which is the ultimate purpose for purchasing such animals. The feeder is the prospect and the finished animal the product of the stockman's goal. The desirability of the form and finish of the fat animal is directly dependent on the kind of animal selected in the beginning.

Stockers.—Stocker cattle should be the same in type and breeding as feeders or fat animals, although the grades may vary likewise. Stockers are young animals, ordinarily yearlings, which are wintered on roughage, grazed the following summer and finished for market usually during the fall and winter period, though sometimes finished in summer. The stocker should possess all the attributes of the feeder or fat animal except age and condition. Considerable attention should be given to the outcome. The desirability of the stocker is determined by the market grade of the animal, which ranges from inferior to choice. Like feeders and fat animals they may be either pure bred or grades from some of the prominent beef breeds, most of them coming under the grade class. It is only in selecting animals for some special purpose, like feeding, and later fitting for some of the large stock shows, that pure breeds are likely to be used. Even then many of the best-fitted animals are of grade origin. In selecting a stocker constitution is usually of somewhat greater importance than in the feeder or fat animal.

Calves.—Calves are subject to judging for future use on the same basis as discussed under stocker, and feeder cattle. They should possess quality, constitution, and vigor, a full, square form, and show evidence of development in a square frame, a strong bone, a deep, uniform amount of natural flesh, and capacious feeding qualities. Evidence of continuous thrift should be apparent. Young animals with small bone, cramped heart girth and upstanding, shallow bodies seldom develop into thrifty specimens. In judging calves a great deal of stress should be placed on the outcome or future usefulness. The small, fat, sleek-bodied calf seldom develops into a large, thrifty, capacious animal. One with a square, compact form, although somewhat inclined to be rough, will usually make good growth

and develop into an animal at least with acceptable form and quality. Calves should show every evidence of early maturity and natural fleshing qualities.

BREEDING ANIMALS.

Breed Type.—In selecting a breeding animal of pure lineage, the breed type should receive first consideration. If the animal is lacking in any substantial breed characteristics this is sufficient to cause severe discrimination. Animals which are maintained for the reproduction of pure-bred animals should possess the accepted form and features maintained by the breeders or the organization which champions the cause of the breed. An animal which fails to conform to breed type is not only at fault itself, but the faulty characters will be reproduced and thus magnify the condition. In establishing a pure-bred herd the type accepted for a foundation should stand for some definite purpose. The breed which is making the greatest headway is the one which has embodied in it the fundamentals necessary for accomplishing the specific purpose in view. If the aim is to breed high-class, pure-bred animals the best is none too good. Unless animals can be produced which satisfy the critical breeder or feeder, it is useless to spend money toward this end. To do this involves a knowledge of breed type or character. The student or purchaser should therefore be familiar with the attributes or type qualifications, which should be an embodiment of correlated utility functions.

Conformation.—The breeding animal is not materially different from the type described under Beef Conformation. The breeding animal, however, should possess scale, an abundance of constitution, and show evidence of capacity both in the digestive and reproductive systems. The constitution should be unusually well developed because of the long period of usefulness in these animals. A long, deep, roomy barrel in the breeding female is important, although symmetry and quality should conform with the other requisites of the animal. Males should show strong reproductive qualities in the head and crest, and females evidence

of a strongly developed reproductive system and milking qualities. In the female the hindquarters should be long, level, the thighs broad, and the hook points rather prominent when the animal is in medium flesh. The latter attribute is indicative of strong maternal qualities.

Constitution and Vigor.—All breeding animals should be qualified with unusual indications of strong bodies and natural vigor. Such animals, very much unlike fattening animals, must undergo a severe strain incident to re-

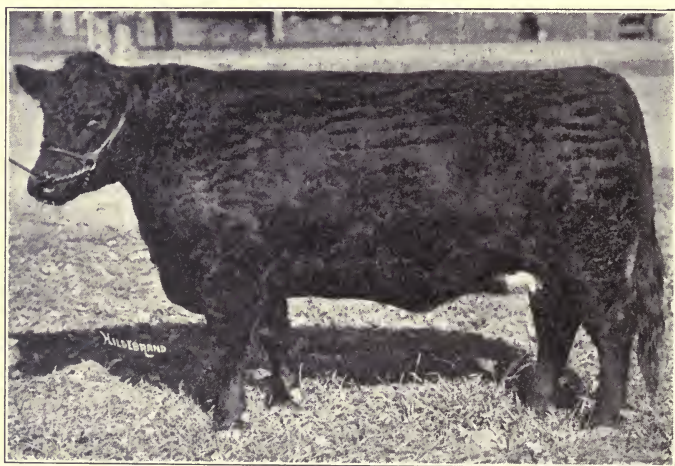


FIG. 115.—Galloway cow, showing a strong, rugged constitution.

production. This requires an unusual amount of vitality for best results. These characteristics are indicated in the large, broad muzzle, broad, clear-cut head, bright, prominent eyes, and a deep, full chest. A capacious, compact yet roomy body is also indicative of this qualification. Consideration of these points is vital in selecting breeding animals.

Temperament.—Temperament has reference to the development of the nervous system or the amount of nerve force. In beef cattle the temperament should be lymphatic, which signifies rapid fattening propensities. In animals maintained for breeding purposes activity and thrift should be closely

associated with this attribute, although not to the extent of depreciating the normally accepted qualification. Any indication of nervousness in a beef animal is seriously objectionable, although some excellent beef animals are disposed to have this fault. Such a condition is antagonistic to rapid fleshing qualities. Breeding animals should possess a bold, stylish carriage, although the temperament should be lymphatic, thus indicating easy handling and management. A sluggish temperament is very objectionable.

Sex Characteristics.—The sex of a breeding animal should be shown by a glance at the head and neck. The bull should be strong in the head, although there should be every evidence of style and refinement. The neck should be short, thick, and the crest well developed, although not to a disproportionate extent. The body should be broad, deep, long and compact, indicating the transmission of weight and early maturing qualities. Indication of feminine characters should be disqualifying marks. Delicacy of constitution and lack of capacity are serious faults.

The head of the female should be finer and cleaner cut than in the male. Any indication of masculinity is very objectionable. There should be an expression of refinement in the head which should characterize the entire animal. There should be no indication of crest development. The head, neck and shoulders should be on a level, there being neither a rise nor a depression in the lines of these parts. The mammary system should be well developed, although in beef animals it is not expected that extraordinary evidences of milk-producing capacity will be present. There should be sufficient development, however, to nourish the calf until its growth and development can be cared for otherwise. Evidences of masculinity in the male and femininity in the female should be readily apparent.

CHAPTER XI.

JUDGING DAIRY CATTLE.

Purpose of the Dairy Animal.—The purpose of the dairy animal, and therefore the fundamental factors in judging, are strikingly different from any other farm animal. The indications of intrinsic value and capacity are determined from an entirely different viewpoint than in judging the horse or block animals. The form is not only different but its associated attributes for attainment of purpose are deeper lying than in other animals. From the standpoint of capacity the development of the vital organs are of much greater importance in the dairy animal than in any other. For example, the direct association of the circulatory system with milk-giving capacity, which is the important and one vital attainment of the dairy animal, represents quite forcibly the depth of this statement. Without a strong circulatory system, whereby the food can be manufactured into milk through the various processes of digestion, absorption, and assimilation the capacity of the dairy animal would be limited. The limitation would depend on the degree of

EXPLANATION OF FIG. 116.

1—Mouth.	14—Withers.	26—Teats.
2—Nostrils.	15—Crops.	27—Barrel.
3—Muzzle.	16—Shoulders.	28—Back.
4—Face.	17—Heart girth.	30—Hindflank.
5—Eyes.	18—Foreflank.	31—Hook points.
6—Forehead.	19—Legs.	32—Tail-head.
7—Ears.	20—Feet.	33—Pin-bones or thurls.
8—Poll.	21—Dew claws.	34—Rump.
9—Horns.	22—Belly or underline.	35—Escutcheon.
10—Jaws.	23—Mammary orifices or wells.	36—Tail.
11—Dewlap.	24—Mammary veins.	37—Thighs.
12—Brisket.	25—Fore udder.	38—Hind udder.
13—Neck.		39—Switch.

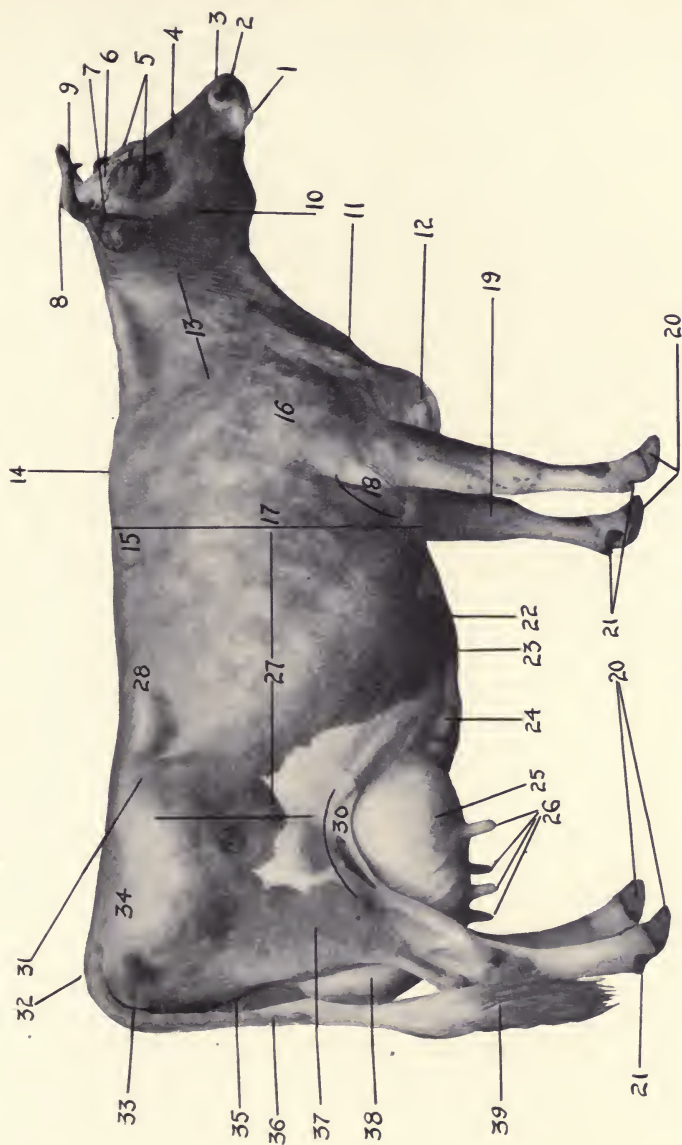


FIG. 116.—Location and names of parts of the dairy cow.

development of the circulatory system. An animal with a weakened system would have low vitality and therefore not only would it be limited in point of present attainment, but the durability and persistency of production would be lessened in the offspring.

As the dairy animal gives off the products of food digestion, absorption and assimilation, daily the natural result would be an animal with the spare, open conformation such as the dairy animal possesses. The block animals, which accumulate the products of the manufactured food, assume an entirely different form. Instead of the food products being given off daily there is an accumulation on the body of the animal, based on dry matter, a similar or like amount of manufactured food materials. We have, therefore, the two distinct types, one eliminating from the body through the mammary system and the other accumulating the products in the bone and muscular tissues, the former being represented in the dairy animal and the latter in the block animal.

Dairy Form.—The type of a typical dairy cow presents a striking contrast to meat-producing animals. This is only natural, however, considering the peculiar nature of the work to be performed. In all other food-producing animals the effect of food consumption is cumulative, the digested portions of the food eaten being stored in the body of the animal. The square, blocky, compact form produces the most economical results from a meat-productive standpoint because the maximum amount of the manufactured product can be stored under such conditions. Likewise the dairy type of animal produces the largest quantity of milk because of the adaptation of the triangular or wedge-shaped form to milk production. The dairy animal does not have need for a broad, smooth, compact shoulder, back, loin, or thighs. The one great work of this type of animal is to produce, through the digestive and mammary systems, the maximum amount of milk possible under the conditions of individual form, kind and quantity of feed consumed and general care and management. This necessitates a striking contrast in the development of the body of beef and dairy animals.

The digestive system and the mammary system are indirectly related to the production of muscle which constitutes the food product in the block animal. This fact is emphasized in the spare form and the nervous development of the dairy animal which shows that the feed eaten is not stored on the body, but rather manufactured into milk through the digestive, circulatory, and mammary systems. The large capacious barrel for feed consumption, the strongly developed circulatory system indicated in the eyes, chest, and general vigor displayed by the animal and the well-developed mammary system are the three vital attributes for the maximum production of milk.

A strong constitution indicates durability and vitality, which are essential in any animal, constantly drawing on its own food resources. A strong blood circulatory system indicates health, vigor, and the proper distribution of the digested materials taken from the feed, while a large and well-developed mammary system is indicative of a capacious manufacturing plant for milk elaboration. When these factors or parts of the animal are properly developed they form distinguishing features of unusual significance. The wedge-shaped form of the dairy cow is significant in its indication of capacity, mammary development, and nerve force or nerve temperament. Each part of the animal has its own important part in milk production. Any one part removed or impaired would seriously impede the milk-productive capacity and otherwise injure the delicate mechanism of the animal.

Dairy Function.—The primary function of the dairy cow is to produce milk, and the secondary function to reproduce herself. Her ability to accomplish these purposes depends on six fundamental points of development. These are dairy form or type, constitution, capacity, nervous temperament or nerve force, the mammary system, and circulatory development. A proper correlation of these factors is necessary for an animal to produce to its maximum capacity. The fundamental factor is capacity for food consumption. If an animal is limited in its ability to consume food the final product or milk-producing capacity is limited likewise, as

it depends directly on the quantity of food consumed. While the producing ability of an animal may be hindered through other sources than limited food consumption and a deficient mammary system, these two factors are of the utmost significance.

A well-balanced animal involving the factors named above will usually have normal activity and ultimate milk-producing capacity, although certain unknown factors may impair or permanently retard one or more of these functions. While it is not always possible to use production as a basis in selecting dairy cows, it is always desirable to do so, especially when animals can be selected having records extending over long, continuous periods. It is not possible for a student to follow this practice, neither has it been established in show ring judging except under specialized conditions. Because of the impracticability of always measuring the capacity of a dairy animal on her actual producing ability, the body form and other exterior evidences of heavy and continuous production are used as a basis for selecting animals.

Experience and observation have taught that there are certain basic conditions or relations between heavy and continuous milk production. It is on these foundation principles that dairy cattle are judged by making general and scrutinized examinations of the exterior form and development. The degree of productiveness or usefulness is determined by the degree of development of the factors mentioned above. Deficiency or delicacy in one or all impairs the efficiency of the animal to the extent of the deficiency, whether singly or combined in influence. The judge of long experience is able to detect very accurately the actual working capacity of an animal because of the known relation of each factor to this capacity as well as their combined influence. Limited observation or experience can only assume the actual effect on production of a deficient form, cramped digestive capacity, weakened constitution or low vitality, a small mammary system, or a weak circulatory system. A complete knowledge based on years of observation and practice is essential to a determination of

the value of these factors, singly or combined. Likewise, correct judgment on dairy form and capacity is the result of continuous practice in determining the value of a single factor or its combined influence with one or more of the others essential to high and continuous production.

Wedges of the Dairy Animal.—The extreme development of the dairy animal toward the wedge-shaped form is significant of factors not wholly understood by the average person. Why a dairy animal should be so extremely different from a block animal would ordinarily cause comment, yet a basic

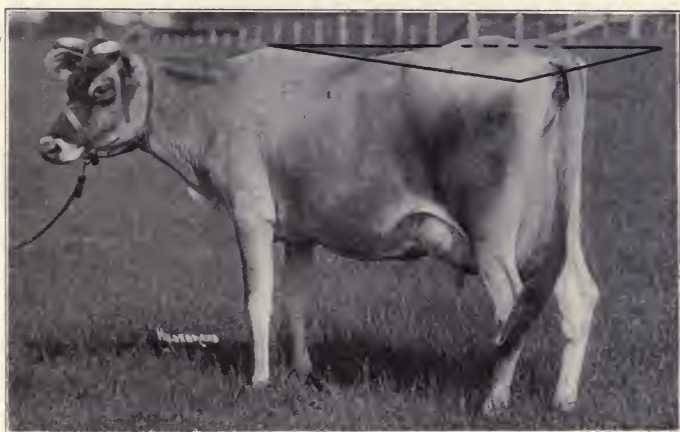


FIG. 117.—Front wedge of the dairy cow, showing the general tendency to grow wider toward the hindquarters.

understanding of this development is comparatively simple and significant in its meaning. One of the fundamental principles involved in a heavy producing dairy animal is the extreme development of the body or barrel compared with the size of the animal. In a heavy producer the barrel is wholly out of proportion with any other part, region, or a combination of them.

Viewed from three different angles the dairy animal presents three distinct wedges, namely, the front wedge, the side wedge, and the top wedge. The meaning of these

terms is simple. They imply an increasing depth of body toward the rear as viewed from the side, an increasing width of body toward the rear as viewed from in front, and an increasing width toward the floor of the barrel as viewed from above. The whole of this development is significant of barrel capacity which is one of the real fundamentals of dairy production. It is exemplified in magnified body capacity and in this respect is widely different from any other type of animal.

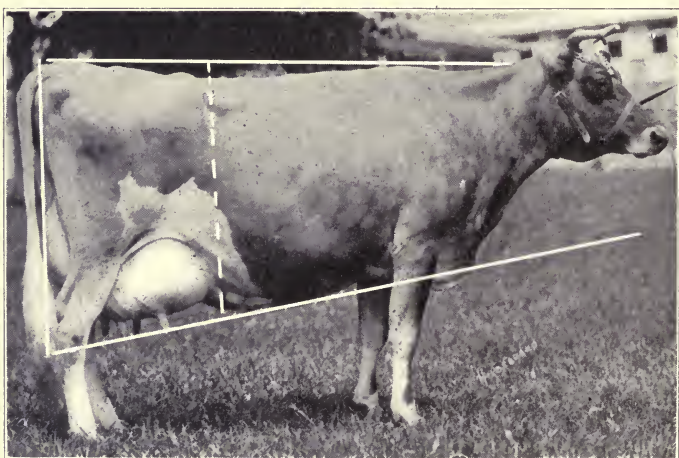


FIG. 118.—Side wedge of the dairy cow, showing the general tendency to grow deeper toward the hindquarters.

Quality.—The dairy animal should possess an abundance of quality. It should have a clean-cut, refined appearance about the head and neck and sharp, well-defined withers. The spine should be spare and open, the skin pliable and elastic, the hair fine and oily, and the bone dense and fine in texture. This attribute is important, not only because of its special relation to the type and refinement of the animal, but because of its influence on maintenance and cost of production. A large, coarse-boned dairy animal is seldom an economical producer. Although such an animal may

produce large quantities of milk, it is usually at a loss because of the excessive food requirements of a large, unrefined

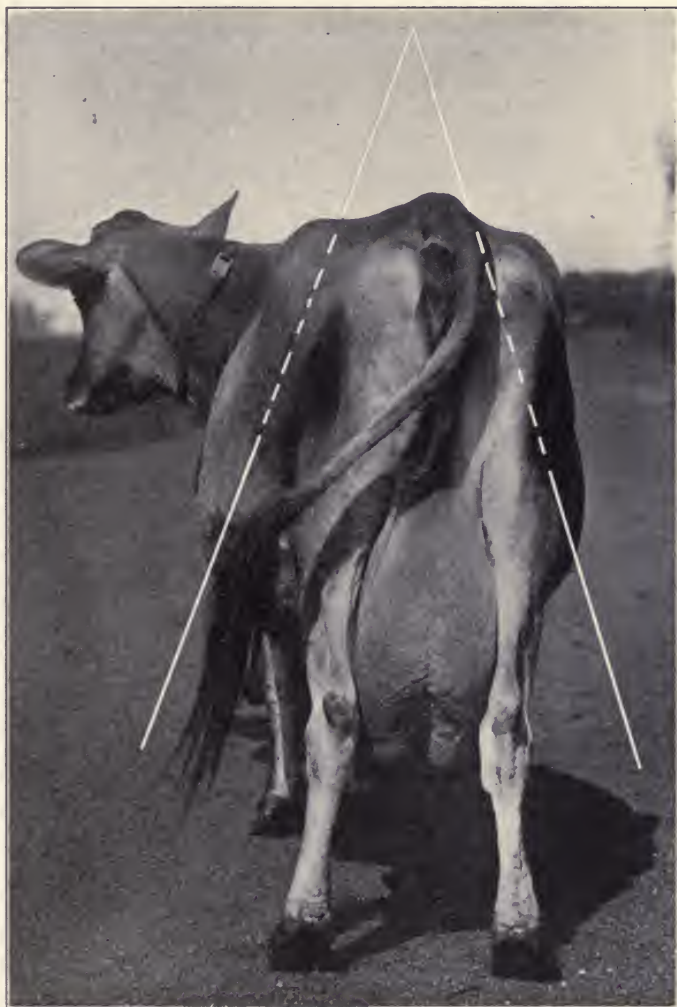


FIG. 119.—Top wedge of the dairy cow, showing the general tendency to grow wider toward the belly or underline.

animal. Heavy framed, coarse-boned dairy animals usually convert a larger comparative amount of food into body fat and maintenance than animals of fine texture and quality.

An examination for quality is made by the hand to determine the pliability and elasticity of the skin, fineness, and texture of the hair. If there is a tendency toward harshness or dryness in the skin or hair it is significant of inferior quality or temporary ill health. Ordinarily it is the former. Other than the examination made by the hand, quality is evidenced in the fineness or texture of the bone, clean-cut lines, sharp withers, long, thin neck, and general refinement or expression. Some judges lay considerable stress on the waxy, yellowish condition of the interior of the ears and the fineness of the hair thereon. Guernsey admirers are especially ardent in their application of this principle to determine quality and richness of milk in the breed.

Constitution.—The constitution of a dairy animal is of more than usual significance. The value of such an animal is not only dependent on present capacity or usefulness but on the length of time which production will be normally and profitably continued. This involves durability or vitality. As the form of the dairy cow naturally precludes the highest development in constitutional capacity, it is especially significant that this attribute receive close consideration. While a dairy animal need not be weak in constitution or low in vitality the peculiar type of the animal naturally favors such a condition. Naturally the wedge-shaped form minimizes the space in which the vital organs may develop and perform their function. Constitution should be equally correlated with the other factors essential to heavy and economical production. Naturally the development of the body or barrel and the organs of milk production magnify these parts and minimize the chest capacity on which a vigorous constitution largely depends.

Constitution, as in other animals, is evidenced by depth of body in the chest region and extreme width through the lower portion of the ribs and on the chest floor. The true dairy form involves a light and spare development at the withers, thus to perfect the true wedge-shape accepted as

a fundamental requisite of dairy form and production. Other than this indication constitution is evidenced in the same manner as in the beef animal. The muzzle should be large, broad, well developed, the eyes large and bright, the skin pliable and elastic, the hair thick, mossy, and evenly distributed over the body. The bone should be dense, fine, and show every indication of refinement and form, although not to the extent of delicacy. If there is weakness in the vital parts of the animal, and especially in the dairy animal, it is an imperfect machine and therefore cannot perform its function continuously in a satisfactory manner.

Nervous Temperament.—The term, nervous temperament, is significant of the ability of an animal to utilize its food other than that required for body maintenance completely for milk production. It represents the exact opposite of the conditions which most nearly meet maximum beef production. The beef animal is lymphatic in temperament and utilizes its food for body maintenance and muscle and fat formation. The dairy animal is nervous in temperament and uses its food for milk production, which is contingent on directing the largest possible part of the food nutrients for this purpose. The nervous temperament is exemplified in the spare, open, conformation. The head should be expressive of character, and clean and free from excess flesh. The neck should be long and thin, the withers sharp, the spine open, the ribs wide, the hook points prominent, the thighs thin and incurving, the rear flanks high and the barrel large. All of these points are indicative of nerve force, showing that the food is elaborated or used otherwise than on the body.

Capacity.—Capacity in its strictest sense signifies the ability of an animal to perform its work with a minimum of food and exertion on the working organism, with a maximum resulting production. An animal without barrel capacity for the storage of large quantities of food will be unproductive sooner or later from the standpoint of profitable returns. Usually an animal will maintain average development for a short time, but the heavy strain of milk production soon saps the vitality of the small animal

lacking in capacity for food consumption. The result is seen directly in the lessened milk flow which eventually eliminates such an animal from herds maintained on a profitable basis. In the early stages of lactation an animal with comparatively small capacity may produce a reasonably large quantity of milk. Later in the period, however, owing to the lack of food-consumptive ability and digestive capacity, the mammary system ultimately subsides and fails to produce until again stimulated by reproduction.



FIG. 120.—Nervous temperament exemplified in the Jersey bull. Note the keen expression of the eyes, the finely drawn features, and the activity and energy displayed in the general demeanor.

Capacity as Indicated by Milk and Butter Standards.—The adoption of yearly milk and butter fat tests is significant that the leading dairy breed associations recognize the need for such data in determining the real practical value or capacity of an animal. It may be possible in judging dairy attainments to be mistaken in the real productive capacity, as evidenced by exterior points or factors. With the aid of the standard, if properly applied, the value of an animal can be determined absolutely. Student or show ring judging must be done by measuring an animal by an adopted system,

as it is impossible to determine the productive value by applied tests in the modern show ring. If it were possible to develop such a system it would be highly desirable from several viewpoints. However, capacity may be very accurately rated or determined if the examiner has a keen knowledge of true dairy form and its correlated functions.

Mammary System.—The mammary system represents one of the real fundamentals of the dairy cow. The animal may



FIG. 121.—A typical udder exemplified in the Holstein-Friesian cow. Note size, length, shape, general balance, and capacity of the cow.

be perfectly developed from the standpoint of dairy form and nervous development, yet if the mammary system is insufficiently developed or faulty for any reason, the machine is imperfect. After the food is taken into the stomach it is digested, absorbed, and finally elaborated into milk through the mammary system. The blood carries the assimilated food products to the mammary system where they are manufactured into milk. If there is not sufficient development in the mammary system to utilize these products, the animal is imperfect from the standpoint of

efficiency to the extent of the difference in the capacity of the animal form and the mammary system.

The udder of the dairy cow is the important part of the machinery, as it is within the udder that the milk is elaborated. The size of it is indicative of capacity for milk production, the same as the size of the barrel is indicative of the capacity for food consumption. A typical dairy cow should have the udder attached high behind. It should extend forward sufficiently to allow the teats to be placed at least six inches apart. The floor of the udder should be long, broad and

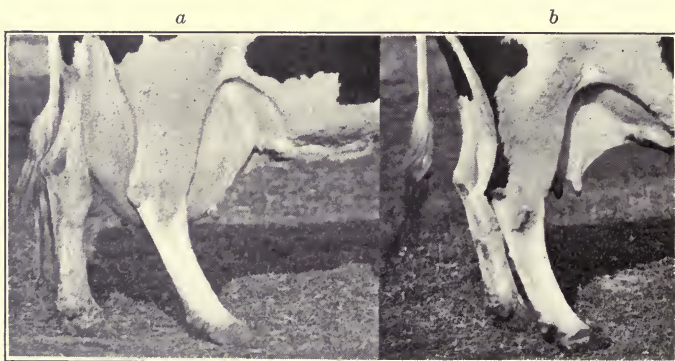


FIG. 122.—(a) a pendulous udder with small, wart-like teats, lacks capacity and is easily injured; (b) a small funnel-shaped udder lacking in capacity. Cows with such udders usually have a short lactation period.

level, as such development furnishes the largest space for the absorption of food nutrients for milk elaboration from the blood. A small, fleshy udder attached low or just between the legs, with a short distention and extending in a funnel shape from the underline indicates small milking capacity.

The mammary veins are important, as their size and development indicates the amount of blood which passes through the udder, this regulating the supply of nutrients for the manufacture of milk. The mammary veins should be long, large, tortuous, and have numerous branches which enter the body through the mammary orifices. These should

be large to accommodate the mammary veins and the branches extending therefrom. An animal with cramped mammary development and small barrel capacity cannot produce economically because the machine is essentially imperfect. If both the original intake and outlet of the animal are so developed it is impossible to produce a normal continuous flow of milk, as the one condition reacts directly against the other.

Durability and Persistency.—In no class of animals, with the possible exception of the horse, is durability as essential as in the dairy animal. Her work is not only at a high tension for a large portion of the year but in the heaviest producers it is so practically during the entire year. A dairy animal usually rests for about one month to six weeks from the standpoint of direct milk production. However, during this time she is usually nourishing a fetus which will soon turn the maternal functions to milk production again and thus entail the severest labor through which any animal must go. The ability to withstand this pressure is a measure of her capacity and value as a dairy animal. The brood mare works and nourishes a fetus and the colt, but she is not compelled to forego the severe strain which the dairy cow does during heavy milk production and through gestation. The beef animal, the sheep and the hog, have the strain of reproduction but they are not compelled to undergo the severe and persistent work of heavy milk production during this period. The dairy cow, therefore, is subjected to a severer strain than any other animal, all of which involves the highest development of durability and persistency.

Structural Form and Examination.—The structural form of the dairy animal implies certain specific conditions which are best explained by giving a detailed description of these parts.

Head and Neck.—The head of the dairy cow should be long, narrow, intelligent in expression, and show every evidence of femininity. The lines of the head should be clear cut and generally expressive of life, vigor, and activity.

The *forehead* should be broad and flat or slightly concave. This is indicative of intelligence and capacity in the development of nerve force.

The *face* should be straight, except as specifically altered by breed qualifications. Quality should be apparent.



FIG. 123.—Cross-section of mammary glands of cow: *a*, body of gland; *b*, lactiferous sinus; *c*, cavity of teat; *d*, duct of teat; *e*, intermammary groove; *f*, septum between glands; *g*, supramammary fat. (Courtesy of L. W. Sisson, from *Anatomy of Domestic Animals*.)

The *eyes* should be large, clear, bright, and indicative of nerve force and general vitality. Small, dull eyes are objectionable, showing weak constitution and, therefore, lack of vitality or durability.

The *ears* should be medium in size and covered with fine, soft hair. The interior should be waxy and covered with a very fine coat of soft, oily, silky hair. This is considered to be a good indication of quality.

The *horns* should be developed according to the breed. Under any condition they should be medium in size, fine in texture, and correspond with the refinement of the animal throughout.

The *muzzle* should be broad, deep, and should show a slight enlargement, thus giving the head the appearance of being incurving between the eyes and the junction with the muzzle. A straight, coarse head and a pointed muzzle are very objectionable.

The *nostrils* should be large and open, thus indicating a large supply of air into the lungs.

The *neck* should be long, and lean, there being no indication of beefiness or coarseness. There should be a clear-cut junction of the head with the neck. A rather long, thin neck with incurving lines is indicative of quality, general refinement, and dairy capacity.

Forequarters.—The forequarters of the animal are significant, as they indicate in a large measure the conformity of the animal to the wedge-shaped form which is accepted as the true dairy type.

The *shoulders* should be long, light, smoothly laid in, narrow on top, and gradually broaden toward the region of the chest floor. Heavy, coarse shoulders are not only indicative of non-conformity to the true dairy type but they indicate coarseness of quality and lack of general refinement. Any indication toward fulness in the shoulders exhibits a tendency to beefiness.

The *brisket* should be rather light, spare, and otherwise lacking in prominence. An extended brisket with fulness and compactness is indicative of beef-producing qualities.

The *legs* should be straight, and the bone dense and fine. The canons should be clear cut and otherwise indicative of

quality and refinement. A heavy bone with coarse, undefined joints indicates plain quality.

The *feet* should be medium in size, strong, and well supported with upright pasterns.

Body.—The body of the dairy animal includes the chest, chine, ribs, loin, flanks, and navel, each of which should have distinctive qualities for best results.

The *chest* development of the dairy animal is of special significance because of its relation to constitutional development. A narrow, shallow chest indicates small lung capacity. The severe and continuous strain which is placed on the dairy animal necessitates a deep, full chest, broad on the floor, where the dairy animal gets the major portion of its chest development. Width is secured on the floor of the chest rather than above, as in the beef animal.

The *chine* should be narrow, light, the spines sharp, open, and placed wide apart. The back should be straight and strong to insure capacity in maintaining a strong, reproductive and mammary system. A low back is objectionable, although not as faulty as in the beef animal. The loin should be broad, flat, long and spare of flesh. Openness of form throughout the back and loin region is one of the chief indications of nerve force.

The *ribs* should be long, deep, and arched. The rib development is especially significant in the dairy animal because of its relation to barrel capacity. Short ribs closely spaced show objectionable form, this being characteristic of cramped capacity and compactness, two attributes not consistent with dairy-cow development.

The *flanks* should be deep and open. The hindflank especially should be high and open to accommodate the udder. Low, full flanks are objectionable, as they show a beefy tendency.

Hindquarters.—The hindquarters are divided into the hips, rump, thighs, and feet and legs, as designated in the following descriptions:

The *hips* should be wide apart and prominent, thus showing the absence of any beefy tendency. Smooth, compact hips exemplify the beef type of animal and should therefore not be a characteristic of the dairy animal.

The *rump* should be long, broad, and level. The tail-head should be smooth and show refinement; otherwise, it is indicative of coarse, undefined form. The pin-bones should be high, wide apart, and spare in their surrounding development.

The *thighs* should be long, lean, and incurving. They should be the exact opposite of the development in the beef animal. Heavy, coarse thighs are seriously objectionable, both from the standpoint of quality and nerve development.

The *legs* should be straight, strong, and well supported on feet of medium size with strong, upright pasterns.

The *tail* should be long, fine, and terminate in a switch with hair of fine quality. Some breeders lay considerable stress on the length of the tail, maintaining that it shows deep development in dairy capacity.

Mammary System.—The mammary system includes the udder proper, the mammary veins, wells, teats, and escutcheon. These parts have a significant bearing on the capacity of the animal and are described in detail in the following:

The *udder* should be large, attached high behind, extend well forward, and be carried closely to the body. A pendulous funnel-shaped udder is seriously objectionable. The udder should not exhibit any tendency to beefiness. The skin should be pliable, elastic, and the hair smooth and fine in quality. A fleshy udder covered with heavy, tight skin and long coarse hair is indicative of beef-producing qualifications. The length of the udder is important. It should extend well forward, the floor should be level, and the quarters well balanced. This is all conducive to maximum capacity in milk production.

The *mammary veins* should be long, large, tortuous, and have numerous branches. This indicates a strong circulatory development which is one of the essentials in high productive capacity.

The *mammary orifices* should be large for the entrance of the mammary veins in the body. Small mammary orifices are indicative usually of small mammary veins and are therefore objectionable.

The *teats* should be medium and uniform in size, evenly

placed, and well balanced. Large teats, uneven in size and unevenly placed are very objectionable.

The *escutcheon* should be high and spreading. Its chief indication is in the development of a large, well-balanced udder.

SCORE CARD FOR DAIRY CATTLE.

	Perfect score.
GENERAL APPEARANCE—24 Points.	
<i>Weight:</i>	4
<i>Disposition:</i> quiet, gentle	2
<i>Form:</i> triangular, wedge-shaped, symmetrical, straight top line	6
<i>Quality:</i> free from coarseness throughout; skin soft, pliable; secretions abundant; hair fine	6
<i>Temperament:</i> inherent tendency to dairy performance, showing economic use of food nutrients	6
HEAD AND NECK—8 Points.	
<i>Muzzle:</i> broad	1
<i>Jaw:</i> strong, firmly joined	1
<i>Face:</i> medium length, clean	1
<i>Forehead:</i> broad between eyes, dishing	1
<i>Eyes:</i> large, full, mild, bright	1
<i>Ears:</i> medium size, fine texture; secretions oily and abundant, yellow color	1
<i>Throat:</i> clean	1
<i>Neck:</i> long, spare, smoothly joined to shoulders, free from dewlap	1
FOREQUARTERS—7 Points.	
<i>Withers:</i> narrow, sharp	3
<i>Shoulders:</i> sloping, smooth; brisket light	3
<i>Forelegs:</i> straight, clean, well set under body	1
BODY—25 Points.	
<i>Crops:</i> free from fleshiness	1
<i>Chest:</i> deep, roomy; floor broad	6
<i>Back:</i> straight, strong; vertebræ open	3
<i>Ribs:</i> long, deep, sprung, wide apart	3
<i>Barrel:</i> deep, long, capacious	10
<i>Loin:</i> broad, strong	2
HINDQUARTERS—12 Points.	
<i>Hips:</i> prominent, wide apart	1
<i>Rump:</i> long, level, not sloping	4
<i>Pin-bones:</i> wide apart	1
<i>Tail:</i> neatly set on, long, tapering	1
<i>Thighs:</i> spare, not fleshy	3
<i>Hindlegs:</i> well apart, giving ample room for udder	2
MAMMARY DEVELOPMENT—24 Points.	
<i>Udder:</i> large, very flexible, attached high behind, carrying well forward; quarters even, not cut up	10
<i>Teats:</i> wide apart, uniformly placed, convenient size	4
<i>Mammary Veins:</i> large tortuous, extending well forward, branching	4
<i>Mammary Orifices:</i> large	6
Total	100

Advanced Registry.—The advanced registry has been perfected only for dairy cattle. While it would be difficult to perfect such a registry for other breeds of live stock, it would not be impossible to do so. With the dairy breeds, cattle are placed in the advanced registry purely on a production basis. The requirements vary depending on the age and the kind of test, whether weekly, monthly, or yearly. It also varies with the requirements of the different breed organizations. Certain standards of production based either on milk, butter-fat production or both having been fixed by these organizations.

Owing to the nervous tendency of the dairy cow and her response in production either to ill or good management, the yearly records are by far the most valuable. The yearly record furnishes a fair and accurate test of the producing capacity of the cow, while a shorter test might and often does give a very misleading and inaccurate test. Detailed information regarding the requirements for advanced registry may be obtained by writing the various breed associations, a list of which is given in the appendix of this work.

Breed Characteristics.—The dairy breeds of cattle are characterized by the following breed marks including weight, quality, constitution, conformation, temperament, and adaptation.

Jersey.—The Jersey breed originated in the Island of Jersey in the English Channel. This breed has attained wide popularity and is adapted to a variety of conditions. The weight of mature Jersey cows ranges from 800 to 1000 pounds. It is one of the smallest of the recognized dairy breeds.

The horns in the bull are rather short and strong. On the cow they are longer with greater curvature. The color of the Jersey is variable. The base of the body color is usually fawn. However, there are numerous shades, such as a yellowish, brownish, grayish, reddish or silvery fawn, which may characterize the breed. In some animals, especially bulls, a large part of the body may be nearly black. Such animals are usually characterized by dark or black heads, necks, and shoulders, thighs, flanks, or other combinations. Some

animals are practically all dark brown or black. The quality of the Jersey is good and its skin secretions are usually very much in evidence from the standpoint of pliability and elasticity. The nervous temperament is highly developed. Specimens of the breed are not considered heavy producers



FIG. 124.—A Jersey cow with breediness and capacity.

ordinarily but the quality of the milk is considerably above the average. One of the common faults of the Jersey is the slack development in the forequarters of the udder. Delicacy in constitution is also a recognized fault. The Jersey is widely adapted, both as a cow for city use and milk and butter production in general.

STANDARD OF EXCELLENCE AND SCALE OF POINTS FOR JERSEY CATTLE.

BULL.

	Points.
HEAD:	
Broad, medium length; face dishd; narrow between horns; horns medium in size and incurving	5
Muzzle broad, nostrils open, eyes full and bold; entire expression one of vigor, resolution and masculinity	5
NECK:	
Medium length, with full crest at maturity; clean at throat .	7
BODY:	
Shoulders full and strong, good distance through from point to point, with well-defined withers; chest deep and full between and just back of forelegs	15
Barrel long, of good depth and breadth, with strong, rounded, well-sprung ribs	15
Back straight and strong	5
Rump of good length and proportion to size of body, and level from hip-bones to rump-bones	7
Loins broad and strong; hips rounded, and of medium width compared with female	7
Thighs rather flat, well cut up behind high, arched flank .	3
Legs proportionate to size and of fine quality, well apart, with good feet, and not to weave or cross in walking . .	5
RUDIMENTARY TEATS:	
Well placed	2
HIDE:	
Loose and mellow	2
TAIL:	
Thin, long, reaching the hock, with good switch, not coarse or high at setting-on	2
SIZE:	
Mature bulls, 1200. to 1500 pounds	5
GENERAL APPEARANCE:	
Thoroughly masculine in character, with a harmonious blending of the parts to each other; thoroughly robust, and such an animal as in a herd of wild cattle would likely become master of the herd by the law of natural selection and survival of the fittest	15
Total	100

Cow.

Dairy Temperament and Constitution.

	Points.
HEAD:	
Medium size, lean; face dished; broad between eyes; horns medium size, incurving	3
Eyes full and placid; ears medium size, fine, carried alert; muzzle broad, with wide, open nostrils and muscular lips; jaw strong	4
NECK:	
Thin, rather long, with clean throat, neatly joined to head and shoulders	4
BODY:	
Shoulders light, good distance through from point to point, but thin at withers; chest deep and full between and just back of forelegs	5
Ribs amply sprung and wide apart, giving wedge shape, with deep, large abdomen, firmly held up, with strong muscular development	10
Back straight and strong, with prominent spinal processes; loins broad and strong	5
Rump long to tail-setting, and level from hip-bones to rump-bones	6
Hip-bones high and wide apart	3
Thighs flat and wide apart, giving ample room for udder	3
Legs proportionate to size and of fine quality, well apart, with good feet, and not to weave or cross in walking	2
Hide loose and mellow	2
Tail thin, long, with good switch, not coarse at setting-on	1

Mammary Development.

UDDER:	
Large size, flexible and not fleshy	6
Broad, level or spherical, not deeply cut between teats	4
Fore udder full and well rounded, running well forward of front teats	10
Hind udder well rounded, and well out and up behind	6
TEATS:	
Of good and uniform length and size, regularly and squarely placed	8
MILK VEINS:	
Large, long, tortuous and elastic, entering large and numerous orifices	4
SIZE:	
Mature cows, 800 to 1000 pounds	4
GENERAL APPEARANCE:	
A symmetrical balancing of all the parts, and a proportion of parts to each other, depending on size of animal, with the general appearance of a high-class animal, with capacity for food and productiveness at pail	10
Total	100

Polled Jersey.—The Polled Jersey, except for the absence of horns, should be judged primarily the same as the horned Jersey. Like other Polled breeds, the horns have been bred



FIG. 125.—Polled Jersey bull.



FIG. 126.—Polled Jersey cow.

off by selection and by following the proper lines of breeding. Owing to the absence of horns the Polled Jersey is not as attractive or apparently as symmetrical as the horned breed.

Guernsey.—The Guernsey breed originated in the Island of Guernsey, which is located near the Island of Jersey, in the English Channel. In many respects the Guernsey is very much like the Jersey breed, although the former is larger and somewhat stronger in constitution. The production of milk and butter-fat is about on a par with the Jersey. The weight of the Guernsey cow ranges from 950 to 1050 pounds, being



FIG. 127.—A Guernsey cow exhibiting striking dairy capacity.

somewhat larger than the Jersey breed. The color is variable, a reddish shade of fawn prevailing. Reddish and yellowish fawn are color characteristics. These colors are often broken by white, which usually occurs on the lower part of the body and on the legs. The muzzle is buff or flesh color and the horns are light or amber. The horns in the bull are somewhat shorter than in the cow. The temperament is superior, the dairy temperament being characteristic of both sexes of the breed. The quality of the Guernsey is excellent. It has a mellow, elastic skin and rather fine

hair. As a whole it is somewhat coarser than the Jersey, although it cannot be greatly criticised. The mellow, elastic skin, yellowish color and secretions are considered to be of great importance by advocates of the breed. The lack of uniform breeding qualities and strong udder development, chiefly in front, are the main criticisms.

STANDARD OF EXCELLENCE AND SCALE OF POINTS FOR GUERNSEY CATTLE.

BULL.

Counts.

DAIRY TEMPERAMENT, CONSTITUTION—38 Points.

Clean-cut, lean face; strong, sinewy jaw; wide muzzle with wide-open nostrils; full, bright eye with quiet and gentle expression; forehead long and broad	5
Long, masculine neck with strong juncture to head; clean throat. Backbone rising well between shoulder-blades; large rugged spinal processes, indicating good development of the spinal cord	5
Pelvis arching and wide; rump long; wide, strong structure of spine at setting of tail. Long, thin tail with good switch; thin, incurving thighs	5
Ribs amply and fully sprung and wide apart, giving an open relaxed conformation; thin, arching flank	5
Abdomen large and deep, with strong muscular and navel development, indicative of capacity and vitality	15
Hide firm yet loose, with an oily feeling and texture, but not thick	3

DAIRY PREPOTENCY—15 Points.

As shown by having a great deal of vigor, style, alertness, and resolute appearance	15
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RUDIMENTARIES AND MILK VEINS—10 Points.

Rudimentaries of good size, squarely and broadly placed in front of, and free from, scrotum. Milk veins prominent	10
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INDICATING COLOR OF MILK IN OFFSPRING—15 Points.

Skin deep yellow in ear, on end of bone of tail, at base of horns and body generally; hoofs amber-colored	15
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SYMMETRY AND SIZE—22 Points.

Color of hair, a shade of fawn with white markings. Cream-colored nose. Horns amber-colored, curving and not coarse	8
Size for the breed: Mature bulls four years old or over, about 1500 pounds	4
General appearance is indicative of the power to beget animals of strong dairy qualities	10

Total 100

Cow.

Counts.

DAIRY TEMPERAMENT, CONSTITUTION—38 Points.

Clean-cut, lean face; strong, sinewy jaw; wide muzzle with wide-open nostrils; full, bright eye with quiet and gentle expression; forehead long and broad	5
Long, thin neck with strong juncture to head; clean throat. Backbone rising well between shoulder-blades; large, rugged spinal processes, indicating good development of the spinal cord	5
Pelvis arching and wide; rump long; wide, strong structure of spine at setting on of tail. Long, thin tail with good switch. Thin, incurving thighs	5
Ribs amply and fully sprung and wide apart, giving an open, relaxed conformation; thin, arching flanks	5
Abdomen large and deep, with strong muscular and navel development, indicative of capacity and vitality	15
Hide firm yet loose, with an oily feeling and texture, but not thick	3

MILKING MARKS DENOTING QUANTITY OF FLOW—10 Points.

Escutcheon wide on thighs; high and broad, with thigh ovals	2
Milk veins long, crooked, branching and prominent, with large or deep wells	8

UDDER FORMATION—26 Points.

Udder full in front	8
Udder full and well up behind	8
Udder of large size and capacity	4
Teats well apart, squarely placed, and of good and even size	6

INDICATING COLOR OF MILK—15 Points.

Skin deep yellow in ear, on end of bone of tail, at base of horns, on udder, teats, and body generally. Hoof, amber-colored	15
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MILKING MARKS DENOTING QUALITY OF FLOW—6 Points.

Udder showing plenty of substance but not too meaty	6
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SYMMETRY AND SIZE—5 Points.

Color of hair a shade of fawn, with white markings. Cream-colored nose. Horns amber-colored, small, curved, and not coarse	3
Size for the breed: Mature cows, four years old or over, about 1050 pounds	2

Total	100
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EXPLANATORY NOTES ON GUERNSEY BREED BY AMERICAN GUERNSEY CATTLE CLUB.

The Guernsey should be: *First.* A dairy animal with a distinctive dairy temperament and conformation, having a strong, nervy structure with a corresponding flow of nervous energy, and every indication of capacity and vitality.

Second. In color of hair, a shade of fawn, with white on limbs and under part of body are considered the prevailing markings, and some degree of uniformity is desirable.

Third. One of the important distinguishing features of the breed is the presence of a yellow color in the pigment of the skin, which is indicative of rich golden color in the milk. This is very pronounced in the Guernsey and held by her to the greatest extent under all conditions of stabling and feed. The intensity of this trait is more marked in some animals and families than in others, but it should be kept at the highest standard. It is fast being recognized that this color is accompanied by a superior flavor in the milk and thus in the butter.

Dairy Temperament.—By “dairy temperament” is meant a strong over-ruling predisposition or tendency to turn the consumption of food toward the production of milk with a high content of solids, especially butter-fat, as against the constitutional tendency so often seen to turn food into flesh. Even in the strongest dairy breeds there are more or less frequent out-crops in male and female of the flesh-making temperament. To breed from such animals, while we are striving to establish a prepotent dairy temperament or tendency, is not wise. All cattle bred specifically for dairy purposes should possess a clear and decided dairy temperament, for it is that quality of character we most desire to establish, enlarge, and perpetuate in the Guernsey cow.

This is especially indicated by the shape of the head, showing brain capacity, wide muzzle, open nostril, full, bright eyes, feminine neck, and a construction of the backbone indicating a strong flow of nerve power and support from the brain to all of the maternal organs.

Constitution.—In breeding our domestic animals, especially for long service, like the dairy cow, it is very important that they should have abundant vital power which we call “constitution.” But constitution must be judged and measured by the peculiar function the animal is bred to fulfil.

With the race horse the function is speed; with the steer, the laying on of flesh; with the dairy cow, the production of

milk solids. In all these various functions, the animal that is to represent any one of them must show not only large capacity in the line of that function, but also the ability to endure long and well the strain of such function, and keep in good health. Constitution is best indicated by a full development at the navel, and strong abdominal walls, showing that the animal when in a prenatal state was abundantly nourished by the mother through a well-developed umbilical cord.

Prepotency.—In the scale for bulls, for the first time, we believe, in the history of dairy breeds, this point is introduced. The reason we have included it is that “prepotency” is the chief consideration in the selection of all male breeding animals. The pedigree and conformation is often all that can be desired, but because the bull is lacking in prepotent breeding power he is an expensive failure. This quality is in a sense difficult to perceive or describe, but we know certain animals have it in high degree and others fail of it completely. It is fairly well indicated by vigor of appearance, strong resolute bearing, and abundant nervous energy. We would distinguish this from an ugly disposition. A bull is ugly by the way he is handled rather than by his breeding. What we want is strong, impressive blood. A dull, sluggish spirit and action we consider indicative of a lack of true dairy prepotency, but we would prefer to breed to a rather sluggish-appearing bull with first-class rudimentaries than to a stylish one with badly placed rudimentaries.

Rudimentary Teats.—We consider that a well-balanced and well-shaped udder in the cow is largely due to the way the rudimentary teats are placed on the sire. If they are crowded close together the result is likely to be narrow, pointed udders. If they are placed well apart, of good size, and well forward of the scrotum, the effect, we think, will be to influence largely the production of well-shaped udders in the resulting heifers and counteract the tendency to ill-shaped udders inheritable from dams deficient in this respect. We believe the future excellence of the Guernsey cow will be greatly aided by close attention on the part of her breeders to this point.

Holstein-Friesian.—The Holstein-Friesian breed is a native of Holland. The breed ranks as the largest of the dairy type. Bulls often weigh as much as 1800 to 2000 pounds, the average of the cows being about 1250 pounds. The color is black and white. There is a great variation in this respect, some animals being nearly black and others largely white. There is a tendency to breed more white than formerly. In Holland some herds are characterized by a red and white color, although this is not characteristic or accep-



FIG. 128.—A Holstein-Friesian cow showing a typical side wedge and a well-balanced udder.†

table in American herds. The quality of the breed is frequently deficient, as indicated in a thick skin, coarse hair, and rough joints. The dairy temperament is not as well developed as in some other breeds. There is a decided tendency to beefiness in some specimens. The body of the Holstein-Friesian is unusually large, giving them great feeding and milk-giving capacity. The udders are large and often pendulous. The breed is characterized by some unusually large producers. Cases are on record where more than 27,000 pounds of milk has been produced annually. The

quality of the milk is not as rich as in other recognized dairy breeds. It ranks considerably below the Jersey and the Guernsey in this respect. In judging Holsteins, while they should be compared with the dairy standard it will frequently be found that they are not as distinctly developed in this direction as either the Guernsey or Jersey breed. The chief faults are lack in dairy temperament, drooping rumps, and unsymmetrical, pendulous udders.

STANDARD OF EXCELLENCE AND SCALE OF POINTS FOR HOLSTEIN-FRIESIAN CATTLE.

BULL.

	Counts.
HEAD.—Showing full vigor; elegant in contour	2
FOREHEAD.—Broad between the eyes; dishing	2
FACE.—Of medium length; clean and trim, especially under the eyes; the bridge of the nose straight	2
MUZZLE.—Broad with strong lips	1
EARS.—Of medium size; of fine texture; the hair plentiful and soft; the secretions oily and abundant	1
EYES.—Large; full; mild; bright	2
HORNS.—Short; of medium size at base; gradually diminishing toward tips; oval; inclining forward; moderately curved inward; of fine texture; in appearance waxy	1
NECK.—Long; finely crested (if the animal is mature); fine and clean at juncture with the head; nearly free from dewlap; strongly and smoothly joined to shoulders	5
SHOULDERS.—Of medium height; of medium thickness, and smoothly rounded at tops; broad and full at sides; smooth over front	4
CHEST.—Deep and low; well filled and smooth in the brisket; broad between the forearms; full in the foreflanks (or through at the heart)	7
CROPS.—Comparatively full; nearly level with the shoulders	4
CHINE.—Strong; straight, broadly developed, with open vertebræ	6
BARREL.—Long; well rounded; with large abdomen; strongly and trimly held up	7
LOINS AND HIPS.—Broad; level or nearly level between hook-bones; level and strong laterally; spreading out from the chine broadly and nearly level; the hook-bones fairly prominent	7
RUMP.—Long; broad; high; nearly level laterally; comparatively full above the thurl; carried out straight to dropping of tail	7
THURL.—High; broad	4
QUARTERS.—Deep; broad; straight behind; wide and full at sides open in the twist	5
FLANKS.—Deep; full	2
LEGS.—Comparatively short; clean and nearly straight; wide apart; firmly and squarely set under the body; arms wide, strong and tapering; feet of medium size, round, solid and deep	5
Carried forward	74

	Counts.
Brought forward	74
TAIL.—Large at base, the setting well back; tapering finely to switch; the end of bone reaching to hocks or below; the switch full	2
HAIR AND HANDLING.—Hair healthful in appearance; fine, soft and furry; skin of medium thickness and loose; mellow under the hand; the secretions oily, abundant, and of a rich brown or yellow color	10
MAMMARY VEINS.—Large; full; entering large orifices; double extension; with special development, such as forks, branches, connections, etc.	10
RUDIMENTARY TEATS.—Large; well placed	2
ESCUTCHEON.—Largest; finest	2
GENERAL VIGOR.—For deficiency discredit from the total received not to exceed eight points.	

GENERAL SYMMETRY AND FINENESS.—For deficiency discredit from the total received not to exceed eight points.

GENERAL STYLE AND BEARING.—For deficiency discredit from the total received not to exceed eight points.

CREDITS FOR OFFSPRING.—A bull shall be credited one point in excess of what he is otherwise entitled to, for each and every animal of which he is sire actually entered in the Advanced Register, not to exceed ten in number.

In scaling for the Advanced Register, defects caused solely by age, or by accident, or by disease not hereditary, shall not be considered. But in scaling for the show ring, such defects shall be considered and duly discredited.

A bull that in the judgment of the Inspector will not reach, at full age and in good flesh, 1800 pounds, live weight, shall be disqualified for entry in the Advanced Register.

No bull shall be received to the Advanced Register, that with all credits due him, will not scale, in the judgment of the inspector, at least 80 points. (See amendment to Rule IV, an exception to these requirements).

Perfection 100

Cow.

HEAD.—Decidedly feminine in appearance; fine in contour	2
FOREHEAD.—Broad between the eyes; dishing	2
FACE.—Of medium length; clean and trim especially under the eyes, showing facial veins; the bridge of the nose straight	2
MUZZLE.—Broad with strong lips	1
EARS.—Of medium size; of fine texture; the hair plentiful and soft; the secretions oily and abundant	1
EYES.—Large; full; mild; bright	2
HORNS.—Small; tapering finely toward the tips; set moderately narrow at base; oval; inclining forward; well bent inward; of fine texture; in appearance waxy	1
NECK.—Long; fine and clean at juncture with the head; free from dewlap; evenly and smoothly joined to shoulders	4

Carried forward 15

	Counts.
Brought forward	15
SHOULDERS.—Slightly lower than the hips; fine and even over tops; moderately broad and full at sides	3
CHEST.—Of moderate depth and lowness; smooth and moderately full in the brisket, full in the foreflanks (or through the heart)	6
CROPS.—Moderately full	2
CHINE.—Straight; strong; broadly developed, with open vertebrae	6
BARREL.—Long; of wedge shape; well rounded; with a large abdomen, trimly held up (in judging the last item age must be considered)	7
LOIN AND HIPS.—Broad; level or nearly level between the hook-bones; level and strong laterally; spreading from chine broadly and nearly level; hook-bones fairly prominent	6
RUMP.—Long; high; broad with roomy pelvis; nearly level laterally; comparatively full above the thurl; carried out straight to dropping of tail	6
THURL.—High; broad	3
QUARTERS.—Deep; straight behind; twist filled with development of udder; wide and moderately full at the sides	4
FLANKS.—Deep; comparatively full	2
LEGS.—Comparatively short; clean and nearly straight; wide apart; firmly and squarely set under the body; feet of medium size, round, solid and deep	4
TAIL.—Large at the base; the setting well back; tapering finely to switch; the end of the bone reaching to hocks or below; the switch full	2
HAIR AND HANDLING.—Hair healthful in appearance; fine, soft and furry; the skin of medium thickness and loose; mellow under the hand; the secretions oily, abundant and of a rich brown or yellow color	8
MAMMARY VEINS.—Very large, very crooked (age must be taken into consideration in judging of size and crookedness); entering very large or numerous orifices; double extension; with special developments, such as branches, connections, etc.	10
UDDER.—Very capacious; very flexible; quarters even; nearly filling the space in the rear below the twist, extending well forward in the front; broad and well held up	12
TEATS.—Well formed; wide apart, plump and of convenient size	2
ESCUTCHEON.—Largest; finest	2
GENERAL VIGOR.—For deficiency discredit from the total received not to exceed eight points.	
GENERAL SYMMETRY AND FINENESS.—For deficiency discredit from the total received not to exceed eight points.	
GENERAL STYLE AND BEARING.—For deficiency discredit from the total received not to exceed eight points.	
CREDITS FOR EXCESS OF REQUIREMENT IN PRODUCTION.—A cow shall be credited one point in excess of what she is otherwise entitled to, for each and every 8 per cent. that her milk or butter record exceeds the minimum requirement.	
In scaling for the Advanced Register, defects caused solely by age, or by accident, or by disease not hereditary, shall not be considered. But in scaling for the show ring, such defects shall be considered and duly discredited.	

A cow that in the judgment of the inspector will not reach at full age, in milking condition and ordinary flesh, 1000 pounds live weight, shall be disqualified for entry in the Advanced Register.

No cow shall be received to the Advanced Register that, with all credits due her, will not scale, in the judgment of the inspector, at least 75 points. (See in last paragraph of Rule VI an exception to these requirements.)



FIG. 129.—An Ayrshire cow of modern type.

Ayrshire.—The Ayrshire breed originated in the shire of Ayre, Scotland. It is characterized by good dairy form, especially in the udder development. The weight of the cows ranges from 900 to 1000 pounds, the males ranging considerably heavier. The color of the modern Ayrshire is largely white, the head and neck or other body parts being marked with red or dark brown spots. The horns are very characteristic of the breed because of their peculiar upright growth. The Ayrshire is strong and vigorous in constitution, the barrel capacious, and the temperament fair

in its development as indicating dairy characteristics. The quality of the Ayrshire is medium. The udder is one of the distinctive qualifications of the breed. It is attached high, extends well forward, and is unusually well carried. Pendant udders are not common in the breed. The quality of the milk is fair, ranking somewhat higher than that from the Holstein-Friesian. The breed is adapted to sparse pasture conditions. It is hardy, and does well under conditions where other less vigorous breeds would fail. The general conformation is long, low, and deep in the body. Lack of size and pronounced dairy temperament are the chief criticisms of the breed, although these are not serious.

STANDARD OF EXCELLENCE AND SCALE OF POINTS FOR AYRSHIRE
CATTLE.

BULL.

HEAD—16 Points.		Points.
<i>Forehead:</i> broad and clearly defined		2
<i>Horn:</i> strong at base, set wide apart, inclining upward		1
<i>Face:</i> of medium length, clean cut, showing facial veins		2
<i>Muzzle:</i> broad and strong without coarseness		1
<i>Nostrils:</i> large and open		2
<i>Jaws:</i> wide at the base and strong		1
<i>Eyes:</i> moderately large, full and bright		3
<i>Ears:</i> of medium size and fine, carried alert		1
<i>Expression:</i> full of vigor, resolute and masculine		3
NECK—10 Points.		
Of medium length, somewhat arched, large and strong in the muscles on top, inclined to flatness on sides, enlarging symmetrically toward the shoulders; throat clean and free from loose skin		10
FOREQUARTERS—15 Points.		
<i>Shoulders:</i> strong, smoothly blending into body with good distance through from point to point and fine on top		3
<i>Chest:</i> low, deep and full between back and forelegs		8
<i>Brisket:</i> deep, not too prominent and with very little dewlap		2
<i>Legs and Feet:</i> legs well apart, straight and short, shanks fine and smooth, joints firm, feet of medium size, round, solid and deep		2
BODY—18 Points.		
<i>Back:</i> short and straight, chine strongly developed and open jointed		5
<i>Loin:</i> broad, strong and level		4
<i>Ribs:</i> long, broad, strong, well sprung and wide apart		4
<i>Abdomen:</i> large and deep, trimly held up with muscular development		4
<i>Flank:</i> thin and arching		1
Carried forward		59

	Points.
Brought forward	59
HINDQUARTERS—16 Points.	
<i>Rump:</i> level, long from hooks to pin-bones	5
<i>Hooks:</i> medium distance apart, proportionately narrower than in female, not rising above the level of the back	2
<i>Pin-bones:</i> high, wide apart	2
<i>Thighs:</i> thin, long and wide apart	4
<i>Tail:</i> fine, long, and set on level with back	1
<i>Legs and Feet:</i> legs straight, set well apart, shanks fine and smooth, feet medium size, round, solid and deep, not to cross in walking	2
SCROTUM—3 Points.	
Well developed and strongly carried	3
RUDIMENTARIES, VEINS—4 Points.	
Teats of uniform size squarely placed, wide apart and free from scrotum; veins long, large, tortuous with extensions entering large orifices; escutcheon pronounced and cover- ing a large surface	4
COLOR—3 Points.	
Red of any shade, brown, or these with white; mahogany and white; each color distinctly defined	3
COVERING—6 Points.	
<i>Skin:</i> medium thickness, mellow and elastic	3
<i>Hair:</i> soft and fine	2
<i>Secretions:</i> oily, of rich brown or yellow color	1
STYLE—5 Points.	
Active, vigorous, showing strong masculine character, temper- ament inclined to nervousness but not irritable or vicious	5
WEIGHT—4 Points.	
At maturity not less than 1500 pounds	4
Total	100

Cow.

HEAD—10 Points.	
<i>Forehead:</i> broad and clearly defined	1
<i>Horns:</i> wide set on and inclining upward	1
<i>Face:</i> of medium length, slightly dished; clean cut, showing veins	2
<i>Muzzle:</i> broad and strong without coarseness, nostrils large	1
<i>Jaws:</i> wide at the base and strong	1
<i>Eyes:</i> full and bright with placid expression	3
<i>Ears:</i> of medium size and fine, carried alert	1
NECK—3 Points.	
Fine throughout, throat clean, neatly joined to head and shoulders, of good length, moderately thin, nearly free from loose skin, elegant in bearing	3
FOREQUARTERS—10 Points.	
<i>Shoulders:</i> light, good distance through from point to point but sharp at withers, smoothly blending into body	2
<i>Chest:</i> low, deep and full between back and forelegs	6
<i>Brisket:</i> light	1
<i>Legs and Feet:</i> legs straight and short, well apart, shanks fine and smooth, joints firm; feet medium size, round, solid and deep	1
Carried forward	23

	Points.
Brought forward	23
Body—13 Points.	
<i>Back</i> : strong and straight, chine lean, sharp and open-jointed	4
<i>Loin</i> : broad, strong and level	2
<i>Ribs</i> : long, broad, wide apart and well sprung	3
<i>Abdomen</i> : capacious, deep, firmly held up with strong muscular development	3
<i>Flank</i> : thin and arching	1
HINDQUARTERS—11 Points.	
<i>Rump</i> : wide, level, long from hooks to pin-bones, a reasonable pelvic arch allowed	3
<i>Hooks</i> : wide apart and not projecting above back nor unduly overlaid with fat	2
<i>Pin-bones</i> : high, wide apart	1
<i>Thighs</i> : thin, long and wide apart	2
<i>Tail</i> : fine, long and set on level with back	1
<i>Legs and Feet</i> : legs strong, short, straight, when viewed from behind and set well apart; shanks fine and smooth, joints firm, feet medium size, round, solid, and deep	2
UDDER—22 Points.	
Long, wide, deep but not pendulous or fleshy; firmly attached to the body, extending well up behind and far forward; quarters even; sole nearly level and not indented between teats; udder veins well developed and plainly visible	22
TEATS—8 Points.	
Evenly placed, distance apart from side to side equal to half the breadth of udder, from back to front equal to one-third the length; length $2\frac{1}{2}$ to $3\frac{1}{2}$ inches, thickness in keeping with length, hanging perpendicular and not tapering	8
MAMMARY VEINS—5 Points.	
Large, long, tortuous, branching and entering large orifices	5
ESCUTCHEON—2 Points.	
Distinctly defined, spreading over thighs and extending well upward	2
COLOR—2 Points.	
Red of any shade, brown, or these with white; mahogany and white, or white; each color distinctly defined. (Brindle markings allowed but not desirable.)	2
COVERING—6 Points.	
<i>Skin</i> : medium thickness, mellow and elastic	3
<i>Hair</i> : soft and fine	2
<i>Secretions</i> : oily, of rich brown or yellow color	1
STYLE—4 Points.	
Alert, vigorous, showing strong character; temperament inclined to nervousness but still docile	4
WEIGHT—4 Points.	
At maturity not less than one thousand pounds	4
Total	100

Brown Swiss.—The Brown Swiss breed until recently has been bred from a dual purpose standpoint. The Registry Association and advocates of the breed are now paying more attention to dairy qualities. The breed is horned, solid brown in color, excepting the udder which is usually of a lighter color. There is usually a light streak of hair on the poll, inside the ears and along the back. The muzzle is

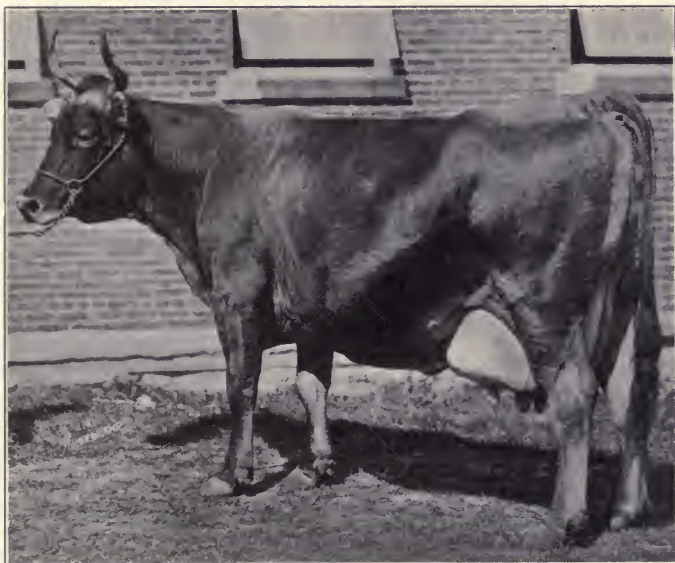


FIG. 130.—A Brown Swiss cow, showing dairy capacity in the general form and development.

mealy colored and the nose, tongue, and switch are black. The breed possesses an exceptionally strong, vigorous constitution. The weight ranges from 1100 to 1300 pounds in standard females. However, the average weight is somewhat less. The general form is inclined to be rather coarse and lacking in dairy attainment and refinement. The neck is somewhat large and heavy, and the shoulders and thighs are inclined to be beefy. The body is capacious, and the

udder usually very well proportioned. The mammary veins and wells are medium in size. The quality is only average, the skin being too thick, the hair inclined to be coarse, and the joints large. In dairy temperament the breed ranks fair. It is adapted to rough, mountainous conditions, not having become widely disseminated in this country.

STANDARD OF EXCELLENCE AND SCALE OF POINTS FOR BROWN
SWISS COWS AND HEIFERS.

	Points.
HEAD.—Medium size and rather long	2
FACE.—Dished, narrow between horns and wide between eyes . .	2
EARS.—Large, fringed inside with light colored hair; skin inside of ear a deep orange color	2
NOSE.—Black, large and square with mouth surrounded by mealy colored band, tongue black	2
EYES.—Moderately large, full and bright	2
HORNS.—Short, regularly set with black tips	2
NECK.—Straight, throat clean, neatly joined to head, shoulders of good length and moderately thin at the shoulder	4
CHEST.—Low, deep and full between and back of forelegs . . .	6
BACK.—Level to setting on of tail and broad across the loin . .	6
RIBS.—Long and broad, wide apart and well sprung with thin, arching flanks	3
ABDOMEN.—Large and deep	5
HIPS.—Wide apart, rump long and broad	4
THIGHS.—Wide with heavy quarters	4
LEGS.—Short and straight with good hoofs	2
TAIL.—Slender with good switch	2
HIDE.—Of medium thickness, mellow and elastic	3
COLOR.—Shades from dark to light brown, at some seasons of the year gray; white splashes near udder not objectionable, light stripe along back. White splashes on body or sides objectionable. Hair between horns usually lighter shade than body	4
FORE UDDER.—Wide, deep but not pendulous or fleshy, extending far forward on the abdomen	12
HIND UDDER.—Wide, deep, but not pendulous or fleshy, extending well up behind	12
TEATS.—Rather large, set well apart and hanging straight down .	8
MILK VEINS.—Large, long, tortuous, elastic and entering good wells	6
ESCUTCHEON.—Well defined, spreading over thighs and extend- ing well upward	2
DISPOSITION.—Quiet	2
SIZE.—Mature cows should weigh not less than 1100 pounds . .	3
Total	100

BULL SAME AS IN COWS AND HEIFERS EXCEPT FOR THE FOLLOWING:

	Points.
EXPRESSION.—Full of vigor, resolution, and masculinity . . .	3
NECK.—Of medium length, somewhat arched, large and strong in muscles on top, sloping symmetrically to shoulders. Shoulders large and strong, smoothly blending into body . . .	10
SCROTUM.—Well developed and strongly carried . . .	3
RUDIMENTARY TEATS.—Squarely placed, wide apart, and free from the scrotum . . .	6
MATURE BULLS.—Should weigh not less than 1600 pounds . . .	3
Dark, smoky skins very objectionable.	

French-Canadian.—The French-Canadian breed it is supposed originally came from the same stock which forms the nucleus of the Jersey and Guernsey breeds. The development of the breed, however, was in the province of Quebec, Canada. The size ranks smaller than the Jersey. The breed is not as highly developed as the Jersey, and is not widely distributed. It is adapted chiefly to colder and more rigorous climates than the Jersey. Compared with this breed, it is stronger in constitution and less subject to disease. The color of the French-Canadian is black or brown with a yellowish fawn stripe along the back and around the muzzle. Black is preferred in the males. The conformation of the breed is very similar to that of the Jersey. The horns are medium in size and usually curve outward and then inward. One of the chief points in favor of the breed is its hardiness. It ranks high in grazing and early maturing qualities. The quality of the milk is somewhat lower than the Jersey or Guernsey, the average butter-fat test for the breed being about 4 per cent. The quality of the breed is especially characteristic, as shown in the mellow hide and orange color in the ears and around the udder. The breed is important more from an authoritative standpoint, being disseminated principally in Quebec.

Dutch Belted.—The Dutch Belted breed is a native of Holland. It is characterized by a band or belt of white which extends entirely around the body, usually from just back of the shoulders or thereabouts to the region of the hook points. The remaining portions of the body are almost invariably

black. The size of the breed ranks smaller than the Holstein, comparing more favorably with the Ayrshire in this respect. The breed is not especially significant from the dairy standpoint, although there are several rather prominent herds in the country. The breed is deficient in dairy development, not showing the characteristic dairy temperament or udder development. The udder is usually small, attached low, and



FIG. 131.—A Dutch Belted cow.

the teats placed close together. The breed does not compare favorably with the Holstein-Friesian, as its origin would possibly indicate. It does not possess a large number of high producers. It is especially adapted to favorable pasture and feed conditions. The breeding qualities are unusually marked, owing to the almost invariable transmission of the belted quality to grade animals. The breed is not widely disseminated. It is distinctive principally on account of the peculiar color markings.

STANDARD OF EXCELLENCE AND SCALE OF POINTS FOR DUTCH
BELTED CATTLE.

Cow.

	Points.
BODY.—Color black, with a clearly defined continuous white belt. The belt to be of medium width, beginning behind the shoulder and extending nearly to the hips	8
HEAD.—Comparatively long and somewhat dishing: Broad between the eyes. Poll prominent; muzzle fine; dark tongue	6
EYES.—Black, full and mild. Horns long compared with their diameter	4
NECK.—Fine and moderately thin and should harmonize in symmetry with the head and shoulders	6
SHOULDERS.—Fine at the top, becoming deep and broad as they extend backward and downward, with a low chest	4
BARREL.—Large and deep with well-developed abdomen; ribs well rounded and free from fat	10
HIPS.—Broad and chine level with full loin	10
RUMP.—High, long and broad	6
HINDQUARTERS.—Long and deep, rear line incurving. Tail long, slim, tapering to a full switch	8
LEGS.—Short, clean, standing well apart	3
UDDER.—Large, well-developed front and rear. Teats of convenient size and wide apart; mammary veins large, long and crooked, entering large orifices	20
ESCUTCHEON	2
HAIR.—Fine and soft; skin of moderate thickness, of a rich dark or yellow color	3
DISPOSITION.—Quiet and free from excessive fat	4
GENERAL CONDITION and apparent constitution	6
Perfection	100

DUTCH BELTED BULL.

The scale of points for males shall be the same as those given for females, except that No. 11 should be omitted and the bull credited 10 points for size and wide spread, placing of rudimentary teats, and 10 additional points for perfection of belt.

Kerry.—The native home of the Kerry is in the Kerry Mountains in western Ireland. There are two types of the breed, known as the Kerry and the smaller type known as the Dexter Kerry. The Kerry is recognized as a dairy animal. The weight ranges from 500 to 600 pounds in the females and from 700 to 1000 pounds in the males. The color is usually black, although red sometimes occurs. White is objectionable. The breed is horned and is moderately well proportioned in its dairy attainments. The breed is not important in this country, although significant from a

historic standpoint. As a milk producer, the Kerry is very good. While the quantity produced is not large it is rather rich in butter-fat. The breed is hardy, enduring unusual privation. It has been developed under particularly adverse feed conditions. It is known in Ireland as the poor man's cow. In quality and early maturity the breed ranks as average compared with other more prominent breeds. Very few specimens have been introduced into this country.



FIG. 132.—A Kerry cow.

KERRY CATTLE—SCALE OF POINTS.

	BULL.	Points.
General formation and character		25
Head, horns, and hair		25
Quality and touch		20
Color		30
Total		100
	Cow.	
General formation and character, head, horns, and hair		15
Body, topline, underline, ribs, setting of tail, and shortness of leg		25
Udder, size, shape, situation of teats, milk veins and escutcheon		40
Quality and touch		10
Color		10
Total		100



FIG. 133.—A group of Holstein-Friesian cows, showing the mature form and extremely well-developed form and capacity.

Class Characteristics.—The development of the dairy animal may be divided into three rather distinct stages or periods which include the mature form in the aged dairy cow, heifer development, and calves.

Mature Form.—The mature dairy animal can be judged or qualifications depicted from the dairy standpoint reasonably accurately. The chief difficulty in determining the value of such animals is during their non-productive period or after the cessation of lactation. This brings into use reasoning power based on the possible value of the dairy animal as determined by quality, conformation, and dairy temperament. The udder development is usually a good indication of the value of an animal, although it may be misleading.

In judging mature animals, particular stress should be placed on present dairy qualifications and the records in the herd if they are available. When an animal is selected during the lactation period allowance should be made for the duration or brevity of time which the animal has been milked. Unusual development at the beginning of the lactation period and slack development at the end of the period may be misleading. However, a close estimate can be made by balancing the udder development with the other dairy characteristics possessed. In selecting after the close of the lactation period, the size and shape of the udder, the character of the mammary veins, and the size of the wells should all be noticed closely. Proper correlation of all these characteristics and other evidences of dairy form will usually furnish a close estimate of the value of an animal.

Heifer Development.—In selecting heifers close attention should be given to the outcome of such animals. Present dairy form or other attributes are valuable, but the possibilities must be taken into consideration. Stress should be placed on the weight for age, quality, constitution, dairy temperament, and indications of mammary development. Short, shallow-bodied animals, thus lacking in capacity, and having slack development otherwise in the constitution and mammary system are very objectionable.

Dairy Calves.—Dairy calves should be judged in the same manner as discussed under the general topic of Selecting Live Stock. The individuality should be considered along with the probable outcome in dairy form and capacity. Evidences of growth, thriftiness, and capacity, both in the digestive and mammary systems, should be apparent. The small calf with a shallow body and flat ribs never develops into a large productive individual. The head should be broad, clearly outlined, the muzzle strong, the neck of



FIG. 134.—An Ayrshire bull exemplifying breed type, quality, and constitutional development.

medium length, the body long, broad, and deep, these all being suggestive of rapid growth and capacity. Quality should be exhibited in the skin, hair, and bone, the latter showing evidences of producing an animal with a large frame which is directly associated with dairy capacity.

Breeding Requisites.—The requisites of breeding cattle have been fully considered under the chapter on Beef Cattle. There are certain factors, however, in connection with dairy animals, which should have special consideration. Like beef animals, dairy cattle should show evidences of mascu-

linity and femininity in the male and female respectively. They should also exhibit strong constitutional development, good quality, and capacity. In the dairy animal, however, special emphasis should be placed on dairy form and capacity, this being indicated in the long, deep, spacious barrel. Correlated with this, dairy temperament should be manifested in large, bright, keen, expressive eyes; clean, facial outlines; and a lean, spare, or open conformation. The development of the rudimentaries should be emphasized in males.

In addition to these qualifications, the breeding female should possess striking evidences of strong maternal functions or reproductive capacity. This, like the general dairy form and capacity, is exhibited in the prominent hook points, lengthy hindquarters, broadly placed pin-bones or thurls, a deep body, and striking mammary development. Coupled with the individual examination of the breeding animal, the ancestral records should be closely examined as well as the offspring if the animal has attained a sufficient age to have animals in the active stage of production. The dairy animal which has reached this stage is unusually strongly reinforced with evidences of reproductive capacity. Not only may the individual be studied from the standpoint of present attainment, but the breeding and productive records of the ancestors and in certain instances that of the progeny. Summing up the discussion, the requisites in the breeding animal include evidences of deep dairy development correlated with constitution, quality, nervous temperament, and productive capacity.

CHAPTER XII.

JUDGING SWINE.

Structure.—The structural development of swine is in a general way like that of cattle and sheep. The framework, especially in the head and forequarter, fixes the form of these parts to a large extent. The neck and hindquarters are largely constructed of muscular tissue. The shoulders, however, especially in their filling over the sides, are composed of muscular tissue. It is quite frequent in judging to find that the shoulders protrude on top, thus giving an open, undesirable condition. The back of the hog, especially along the spinous processes, is rather heavily filled with muscle and fat tissue in the finished animal. In this respect swine are different from sheep, having a larger proportion of valuable cuts in the forequarters and body proper. From the market standpoint these regions are more important, in judging, than in sheep.

In the region of the loin and coupling there is a large amount of muscular tissue. Animals should be thickly covered in this region and the flanks should be low and full and the sides smooth and even. Like cattle and sheep, the form and development of the hindquarters is largely determined by muscle and fat development. The ham of the hog is especially valuable, it being comparable to the leg of mutton in sheep. In swine the shape of the head especially is very largely determined by the bony framework, next the shoulders, then the body and least of all the hindquarters. The importance of these points will be fully appreciated in scoring or comparing a class of animals to determine merit from the market standpoint. Block animals are judged according to the amount, location, and quality of the edible products. In swine there is a more uniform distribution of natural flesh, and a higher dressing percentage than in other animals. The value of these parts therefore varies less than in cattle or sheep.

Purpose and Method of Use.—The carcass of swine is used either in the fresh form or in a cured condition. Practically all of the cuts, with the exception of the edible parts of the viscera, may be prepared in a permanent condition for market uses. Portions from the head, neck, and jowl may be minced and made into various products for immediate or future consumption. Backbones and ribs are usually consumed in a fresh condition or left intact with the sides. Otherwise practically all of the cuts from the hog can be prepared intact for future use. Such parts include the shoulders, hams, sides, belly meat, and leg portions. When prepared in this condition the cuts become standard market products.

There is probably no other animal in which the use is as wide or varied. On this account pork products are very wide in adaptation among all classes of people. The various cuts obtained from the hog are not only prominent from the packing-house standpoint, but also from that of the farmer and the city patron. No other farm animal can be produced as profitably under such a range of conditions. The greater uniformity in the value of the various cuts and their edibility, in both the fresh and cured form, gives a double significance to this type of animal. Knowledge of the form of the hog and its value is more widely disseminated than that of any other block animal. It constitutes one of the main sources of meat, especially among the average class or common people. In judging the hog, its adaptability to the purposes and conditions mentioned should be given close consideration.

EXPLANATION OF FIG. 135.

1—Mouth.	9—Shoulder.	18—Back.
2—Nostrils.	10—Foreflank.	19—Loin.
3—Face.	11—Chest floor.	20—Rump.
4—Eyes.	12—Legs.	21—Coupling.
5—Ears.	13—Dew claws.	22—Hindflank.
6—Jaws.	14—Sheath.	23—Tail.
7—Jowl.	15—Belly.	24—Thighs.
8—Neck.	16—Sides or ribs.	25—Hocks.
	17—Heart girth.	

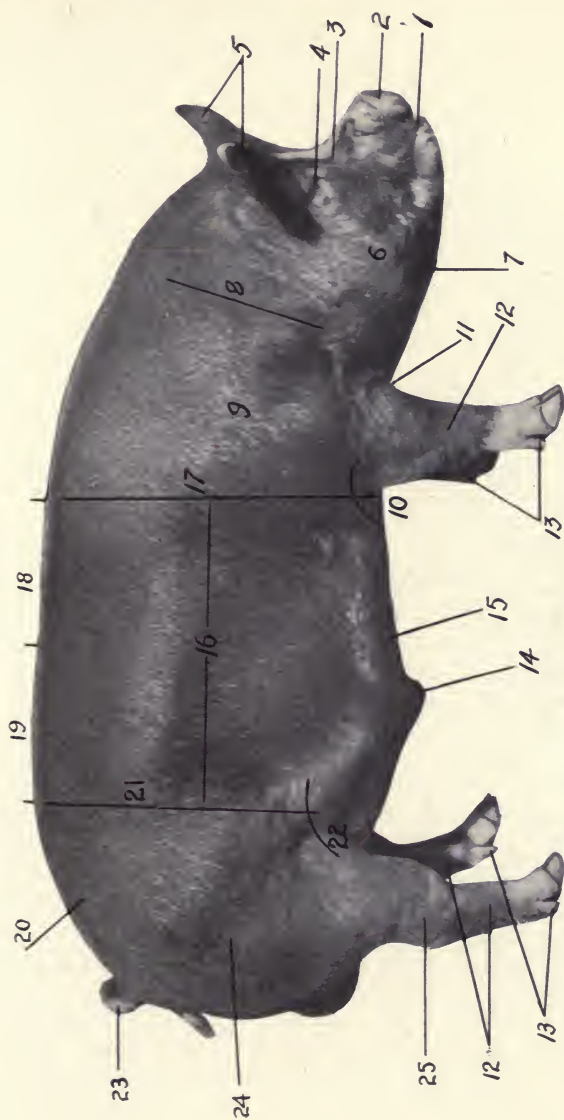


Fig. 135.—Showing location and names of parts of swine.

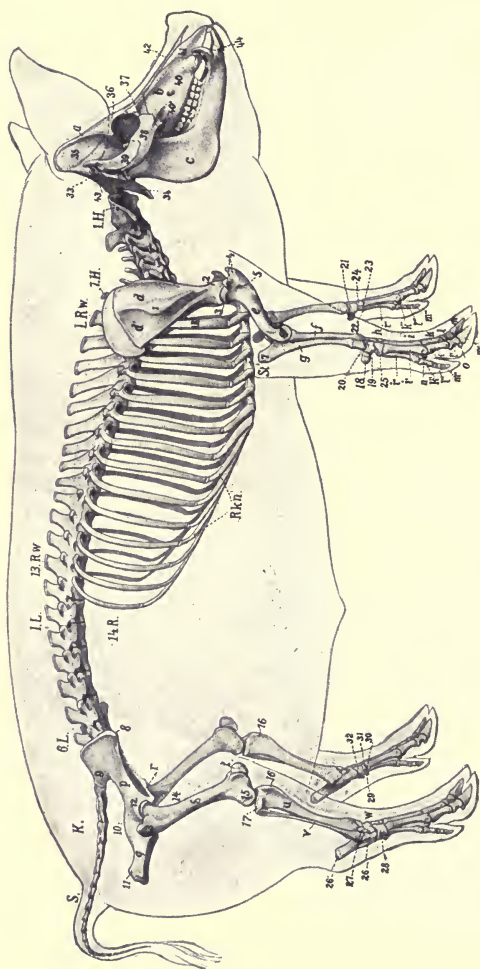


FIG. 136.—Skeleton of pig, lateral view: *a*, cranium; *b*, upper jaw; *1H-7H*., cervical vertebrae; *1Rw*., first thoracic vertebra; *13Rw*., thirteenth thoracic vertebra (next to last); *1L*., first lumbar vertebra; *6L*., sixth lumbar vertebra (next to last usually); *K*., sacrum; *S*., coccygeal vertebra; *1R*., first rib; *14R*., last rib; *Rkn.*., costal cartilages; *St.*., sternum; *d*., supraspinous fossa of scapula; *d'*., infraspinous fossa; *1*, spine of scapula; *2*, neck of scapula; *e*, humerus; *3*, head of humerus; *4*, tuberosities of humerus; *5*, deltoid tuberosity; *6*, external epicondyle of humerus; *f*, radius; *g*, ulna; *7*, olecranon; *h*, carpus; *18-25*, carpal bones; *i-v''''*, metacarpus; *k-k''''*, proximal phalanges; *l-l''''*, middle phalanges; *m-m''''*, distal phalanges; *n, o*, sesamoids; *p*, ilium; *8*, external angle of ilium (tuber coxae); *9*, internal angle of ilium (tuber sacrale); *10*, superior ischiatic spine; *q*, ischium; *11*, tuber ischii; *r*, pubis; *12*, acetabulum; *s*, femur; *13*, trochanter major; *14*, trochanter minor; *15*, external epicondyle; *t*, patella; *u*, tibia; *16*, crest of tibia; *17*, external condyle of tibia; *v*, fibula; *w*, tarsus; *26-31*, tarsal bones; *26'*, tuber calcis. (After Ellenberger, in Leisering's Atlas.) (Courtesy of L. W. Sisson from Anatomy of Domestic Animals.)

Age.—The age of swine may be determined by the teeth, although this method is seldom used. The general appearance of swine can usually be relied upon to determine the age to the extent which it is needed in the class room, show ring, or on the farm. Aged boar and sow classes include animals two years old or over, this being the upper age limit in show yard classifications. The stage between one and two years and under one year can usually be determined satisfactorily by the general appearance of the animal. Furthermore, swine are difficult to handle to determine the age by dentition.

Breed Classification.—Swine are divided into two distinct types on a basis of their adaptability to the production of pork and lard, and bacon products. Certain breeds of hogs go to the market designated as lard or fat hogs, others as bacon hogs. The distinction is in the peculiar characteristics of the two types which adapt one to the production of an average-qualified edible product and the other to the production of a high-class bacon product characterized by alternate layers of fat and lean. The former type has a thick pad of fat over the outside of the body, the latter type having a thinner outside covering of fat with a characteristic streaking of the fat and lean. The classification is made by breeds as follows:

Fat Type.—Berkshire semifat, Poland-China, Duroc-Jersey, Chester White, Hampshire,¹ Cheshire, Victoria, Essex, Suffolk, Middle Yorkshire, Small Yorkshire, and Mule-foot.

Bacon Type.—Large Yorkshire and Tamworth.

Fat Type.—The qualifications of the fat type of hog, while covering many of those which characterize the bacon type, have a peculiar significance, as given under several important headings, which include age, weight, form, quality, constitution, capacity, condition, and maturity. Constitution and capacity are of special significance in breeding swine. The other qualifications are especially important in considering the hog from the market standpoint.

General View of the Hog.—In judging the hog the quality, conformation, style, constitution and vigor should be carefully considered. By quality is meant fineness of bone,

¹ Classed also as a bacon animal, depending on growth and development.

straight glossy hair, fine, clean skin and a clear-cut contour, especially about the head and ears. The bone in the leg should be large, straight and strong, the nostrils open, the eyes prominent and bright, and the chest, broad, deep and full. If an animal is being selected for a breeder, breed character and constitution are of special importance. One of the most common faults of the hog, especially in some breeds is to narrow abruptly behind the shoulders and gradually become narrower toward the buttocks, thus giving the animal, not only an ungainly appearance, but a very undesirable condition from the market standpoint. Such a condition is likely to be magnified in the male because of the natural tendency to be heavy through the shoulders owing to the development of shields. This is a common fault in sows, and should be avoided.

Age and Weight.—The age at which a hog reaches market maturity and the ultimate weight attained at this period is dependent on the use or purpose of the animal. The method of feeding also bears directly on the problem. A hog grown under the proper condition for breeding purposes naturally develops into a larger and stronger animal than otherwise. Growth takes place during a longer period than when the same animal is fed properly for market. A clear distinction should therefore be made in judging hogs for breeding and market purposes. Special stress should be placed on the bone development in a breeding animal because of its influence on the duration of usefulness. From the market standpoint it is necessary to develop only sufficient bone and substance to carry the finished market weight.

The various breeds of hogs differ greatly in their weight for age, growing period, and maturing qualities. The Essex is a small early maturing breed, the small size being one of the principal objections to the breed. The Tamworth is a larger and later maturing breed, the latter characteristic being one of the chief objections to them. Weight for age and maturing qualities are dependent on the breed, the individual, and the method of feeding and management. Exceptional weight for age is desirable, providing it is correlated with market demands. A hog weighing 200 to 225

pounds is always in ready demand. Small, unfinished hogs or overgrown specimens with excessive waste are not salable at remunerative prices. It is therefore better to have less weight, more quality, more smoothness and symmetry of form than to have extraordinary weight at the expense of these attributes.

Conformation.—The fat type of hog is closely analogous to the beef animal in form and development. Consideration should be given to the length, width, depth, symmetry and



FIG. 137.—A Berkshire barrow, showing the desired form, quality, and condition in the fat hog.

compactness, all of which should be closely correlated in the utility animal. The form of the breeder is not greatly different from the animal used for feeding purposes. The principal difference is in the larger, broader, capacious frame of the breeding specimen. It is not necessary, therefore, to differentiate greatly in judging these two types of animals. The body of both should be long, wide, and deep, the back slightly arched, the shoulders smooth, the sides smooth and even and the loin broad. The animal should have good depth, this being largely determined by the spring

and length of the ribs. The shoulders, sides and thighs should be smooth and free from creases or wrinkles. A line stretched from the shoulder to the thigh, either at the rib spring, mid-body or at the underline should touch the parts mentioned. The width should be sufficient to furnish the maximum amount of back and loin cuts. Occasionally animals taper from the top line toward the underline. This is not only objectionable because of the decrease for productive purposes, but it renders the animal much less capacious as a feeder or breeder than otherwise. The nearer the hog conforms to the parallelogram in all of its lines and measurements the nearer it approaches the ideal. The legs should be short, straight and strong, this being especially important in breeding animals. The bone should be large, dense and smooth, the pasterns straight and strong, and the animal should stand well up on the toes. A break in the pasterns such as to allow the animal to walk on the dew claws is seriously objectionable. The general appearance of the hog should show smoothness, symmetry, style, and compactness. Constitution and vigor should be clearly evident both in breeding and feeding animals.

Indications and Value of Quality.—Quality indicates both texture of bone and carcass and the dressing percentage, these determining in a large measure the ultimate value of the product. Quality is exhibited largely as in other animals, although there are special characteristics which indicate its presence or absence. The general appearance of the animal should present clean-cut features and outline, there being no tendency to grossness or flabbiness in any part. Lack of clean-cut, trim lines are especially indicative of inferior quality. The indications are seen in an even distribution of a fine, silky coat of hair. Coarse hair and frequently associated swirls are the most noticeable indications of faulty quality. Coarse quality is further indicated by either long, coarse, straight or kinky hair or the reverse condition in which it curls rather tightly to the body. The latter is more objectionable as it detracts, both from the usefulness and the general appearance of the animal. Swirls are very



FIG. 138.—Berkshire barrows, showing the long, broad, deep and capacious body necessary in the breeder or feeder.

objectionable, these occurring usually about the head, jowl, on the back, or over the rump.

The bone of the animal is one of the chief indications of the quality possessed. A large, coarse, open bone and rough, undefined joints are extremely objectionable. While there should be sufficient bone to sustain the weight of the animal under all conditions, quality should not be sacrificed to obtain it in an extreme degree. A bone of somewhat smaller size with sufficient quality is more desirable than a large, spongy bone devoid of quality. This latter condition usually signifies open or loose conformation, which is a very objectionable feature. Large, overgrown ears, a heavy, flabby jowl, coarse, open shoulders, rough, undefined joints, coarse hair and a large, coarse bone are the chief indications of objectionable quality. Taken as a whole, there should be a general indication of smoothness, compactness and refinement both in form and finish.

Constitution and Vigor.—Constitution is especially significant in the breeding animal. Because of the comparatively short period which the feeding animal is maintained, constitution is not of equal significance. The breeding animal is usually maintained for a long period of years, comparatively speaking, and to sustain the burden of reproduction and development it is necessary to have as much constitution as consistent with the size and type of the animal. Constitution is indicated by a broad, strong head, large, clear, bright eyes, a large muzzle, large nostrils and a broad, deep chest, the latter indicating capacity for heart and lung development. The general appearance, capacity, movements and demeanor should otherwise indicate a strong or weak-constituted animal.

Breeding and Feeding Capacity.—Capacity signifies the ability of an animal to economically use sufficient feed to attain normal and economic development as a feeder or to properly nourish the body and that of the fetus and offspring. A long, broad, deep, capacious body is important in accomplishing this end. Capacity is closely coordinated with constitution, as one cannot be developed to a maximum degree without the other. Capacity indicates roominess of

body. This term should not be confused with the coarse-qualified, large, open-framed body formerly described. Capacity and compactness should be consistently developed in the animal. A cramped chest floor and a narrow floor line in the body with insufficient length and width otherwise are important indications of insufficient capacity.

Meaning and Value of Condition.—The term condition is used to signify the amount of marketable finish acquired by an animal. A hog with a small amount of fat development is said to be in low condition, thus lacking the proper amount of fat for placing it in the most acceptable condition for market purposes. A high condition may be obtained economically or at considerable expense, thus largely eliminating the possible profit from swine husbandry. When an animal is excessively fattened, there is a double loss, as superfluous fat is extremely objectionable in market animals.

The important evidences of condition are not difficult to recognize. A high-conditioned hog is smoothly covered with fat, thus giving an even, smooth, symmetrical appearance. The jowl should be full and firm, the shoulders smooth, well filled, and the flanks low. If the flanks are well filled and carried low it signifies the general deposition of fat, this being one of the last places where fat is deposited at which time normal marketable finish is completed. A full, smooth, even, symmetrical appearance is indicative of finish desired in market animals.

Maturity.—Maturity has a double significance. It signifies the attainment of definite qualifications for two fundamental purposes. The term may signify either breeding or market maturity. An animal should be matured for breeding purposes under normal growing conditions to influence the growth of a strong, dense bone, full muscle development, and to otherwise induce strong constitutional powers primarily for reproductive purposes. Market maturity in a hog should be attained at six to eight months of age, and to obtain the desired weight for age different feeding methods must be followed. Indications of forced market maturity are usually in evidence in the form, vigor displayed, carriage of body and bone development, as indicated in the legs and feet.

Small bone, an overabundance of fat, weak, low pasterns, spreading feet, and stilted carriage usually indicate forced maturity. This condition necessarily indicates the possession of objectionable qualifications. The comparison used should not be taken as absolute but rather as indicative of the fundamental meaning of the two conditions. In the market animal these conditions should not be in evidence to an extreme degree. The principal requirement in such animals is a sufficiently strong bone to maintain the finished weight providing no ill effects are caused otherwise. As a breeder, however, where normal size, weight for age, constitution, capacity, and reproduction are involved, such a condition as the above is highly objectionable. Such animals, judged from the breeding standpoint, should be subject to extreme criticism, and likewise in market animals, where utility is depreciated.

Dressing Percentage.—A well-bred hog with pronounced individuality should normally dress from 75 to 85 per cent. of the live weight. The dressing percentage is of necessity dependent upon the type, age, breeding, individuality, and condition. An inferior-bred individual, low in condition, will dress a low percentage, as the conformity of the animal to the accepted standard and the condition attained influence the percentage of edible product obtained from the live animal. Young pigs or unfinished shoats will not dress as high as older or finished animals respectively. The accumulation of fat throughout and over the body parts is largely responsible for the ultimate ratio between the live and dressed weight.

Exceptional individuals or lots of hogs have been known to dress as high as 87 to 88 per cent. This is an extreme condition, however, and should not be taken as the average. A hog in average condition will dress about 75 per cent., and one in high condition about 80 per cent. These figures are based on averages obtained under normal conditions of breed, individuality and condition.

Percentages of Yield.—The variety of cuts into which a hog can be divided varies considerably. The total yield of the various cuts mentioned in the following table will vary with the market, and to a certain extent depending upon the

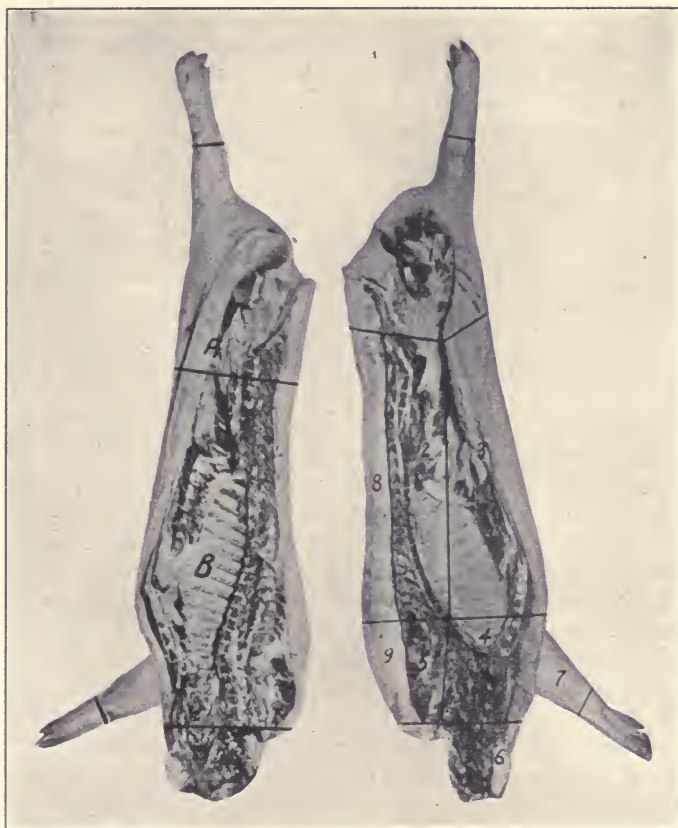


FIG. 139.—English and domestic cuts of swine carcass. (Courtesy of Illinois Agricultural Experiment Station.)

English cuts.

A—Long cut ham.

B—Long side or middle.

Domestic Cuts.

1—Short cut ham.

2—Loin.

3—Belly.

4—Picnic butt.

5—Boston butt.

6—Jowl.

7—Hock.

8—Fat back.

9—Clear plate.

2, 8—Back.

2, 3, 8—Side.

4, 7—Picnic shoulder.

5, 9—Shoulder butt.

8, 9—Long fat back.

4, 5, 7, 9—Rough shoulder.

size of the hog and the season of the year. These variations will not be, on the average, more than 2 per cent. of the total yield. The figures given are based on hogs weighing from 240 to 275 pounds.

A hog cut in the following manner will yield the following percentages based on live weight.

Cuts.	Per cent.
Loin	9.00
Belly	12.00
Backs	12.00
Shoulders	9.00
Hams	12.50
Lard	13.00
Total	67.50

The remaining portion of the animal is included in the head, neck, shanks, feet, and viscera, thus constituting $32\frac{1}{2}$ per cent. of the total weight, making the standard edible products from the hog constitute slightly more than two-thirds of the total live weight.

Based on the short-rib method of cutting a hog carcass, from heavy weight hogs weighing 300 to 350 pounds, the following yields will be available:

Cuts.	Per cent.
Ribs	37.00
Hams	12.50
Shoulders	8.00
Lard	14.50
Total	72.00

This leaves a total of 28 per cent., which is included in the head, viscera, and other minor parts of the animal. The variation in the two methods of cutting and the size of the hog makes a difference of $4\frac{1}{2}$ per cent. in the total yield of the products.

Details of Form.—A somewhat better understanding can be obtained of the desired qualities of the hog by making a detailed study of the various parts as follows,

Head.—The head should be short, straight or medium in dish and broad between the eyes. The eyes should be large, clear, and prominent. Features of the breed or type should be especially significant. The head should be deep as viewed from the side, showing a straight face or medium dish, a large muzzle, and open nostrils.

Ears.—The ears should be medium in size, erect, semi-erect, or pendant, depending on the breed, and covered with a short, fine coat of hair. Heavy, coarse, pendant ears indicate inferior quality. The Berkshire has an erect ear, the Poland-China a semidrooping ear, and the Chester White a drooping or pendant ear. These factors are not as important in judging market hogs as when considering animals from the breed type standpoint.

Jowl.—The jowl should be firm, trim, and closely carried. A large, heavy, pendant jowl is objectionable, as it indicates coarseness of quality or overdevelopment in condition. A smooth, trim jowl is most desirable, as this condition is usually significant of quality. Superfluous, flabby flesh or fat is objectionable in this region both in breeding and market animals.

Neck.—The neck of the hog should be short, broad, deep, and smoothly and evenly blended with the head and shoulders. A long, thin neck is objectionable as it usually signifies inferior breeding, low condition or general unthriftiness. The neck of the hog is extremely short, especially in the fat type, there being a longer, more pronounced formation in the bacon type of animal.

Shoulders.—The shoulder development of the hog is extremely important, as the form of it is indicative of several important factors. Large, coarse, open shoulders detract seriously from the value of an animal, either for breeding or feeding purposes. The same characteristics will be transmitted by the breeding animal, and such a condition is objectionable in finished animals owing to the relatively high value of the cuts in this region. The shoulders should be broad, although not to such an extent that the forewidth of the body cannot be carried out to the extremity. This is one of the common faults of the hog and therefore

attention should be given in overcoming this objectionable characteristic. The shoulders should be broad, level, smooth, and compactly covered over the top and sides. The depression characteristic of the so-called open shoulder indicates lack of condition and coarseness of quality.

Chest.—The chest measurement is determined by the width and depth of the animal attained through the body part back of the shoulders. There should be no depression in this region, as such would interfere with the normal constitutional capacity and therefore with the future usefulness. Good width and depth in the heart-girth region are significant of strength and vigor. Any tendency toward narrowness at the base of the chest is extremely objectionable.

Back.—The back should be long, uniform in width from shoulders to hindquarters, smooth, and slightly arched. There is a decided tendency for hogs to narrow as the hindquarters are approached. Special discrimination should be made against an animal of this conformation.

Sides and Ribs.—The length and depth of the body are determined largely by the formation of the ribs. They should spring squarely from the back to give width of body, and be long and extend low to give depth of body. The coupling should be short. The sides should be smooth, extend on a direct line with the shoulders and thighs and be free from wrinkles, creases, or any other characteristic rough condition.

Flanks.—The flanks should be full and low. High flanks detract from the usefulness and general appearance of an animal. They give the impression of ranginess which is objectionable. They also indicate weak constitution, especially the foreflank, which determines chest capacity in a large measure. An animal cut high in the hindflank seldom breeds or feeds well.

Feet and Legs.—The legs should be short, straight, strong, and squarely placed under the body. The pasterns should be upright and the animal stand well up on the toes. Low, weak pasterns are very undesirable.

SCORE CARD FOR FAT HOGS.

		Perfect score.
GENERAL APPEARANCE—40 Points.		
<i>Weight:</i> score according to age		6
<i>Form:</i> low set, rectangular, broad, deep, long, smooth, symmetrical		10
<i>Quality:</i> refined head, smooth, sides free from wrinkles, fine straight hair, clean bone		10
<i>Condition:</i> thick, even covering of firm flesh		10
<i>Temperament:</i> lymphatic, disposed to fatten		4
HEAD AND NECK—7 Points.		
<i>Head:</i> short, broad, deep		1
<i>Snout:</i> comparatively short, fine		1
<i>Eyes:</i> large, bright, wide apart		1
<i>Face:</i> moderately dished, according to breed, broad between the eyes		1
<i>Ears:</i> medium size, pointed, thin, carried well up		1
<i>Jowl:</i> full, deep, trim		1
<i>Neck:</i> thick, deep, short, top line sharply curved upward		1
FOREQUARTERS—8 points.		
<i>Shoulder:</i> wide, smooth on sides, compact on top		4
<i>Breast:</i> prominent, full		2
<i>Legs:</i> short, straight, strong, clean bone		2
BODY—31 points.		
<i>Chest:</i> deep, wide, full, no constriction		3
<i>Back:</i> broad, thickly covered, well supported, arched		10
<i>Sides:</i> long, deep, smooth, firm, thickly covered		6
<i>Loin:</i> broad, thickly covered		10
<i>Flank:</i> deep, full, underline straight		2
HINDQUARTERS—14 points.		
<i>Rump:</i> long, broad, level		2
<i>Ham:</i> wide, deep, full, well rounded, firm		10
<i>Legs:</i> short, straight, strong, clean bone		2
Total		100

Breed Characteristics.—The various breeds are characterized by the differences in type, size, weight, color markings, thriftiness, adaptability, maturity and condition as follows:

Berkshire.—The Berkshire is a native of the Shire of Berk, England. The breed is important, not only as a typical breed in itself, but also from its use in developing other newer breeds. The Berkshire figured prominently in the development of the Poland-China breed of swine in Ohio. Ordinarily this breed classes among the fat types. The writer gives it a place between the fat and bacon types, designating it as a semifat breed. Considered from the

standpoint of its use in specific bacon production it comes much nearer filling these requirements than any of the other breeds belonging to the fat type. In size the Berkshire ranks among the larger breeds. The average weight of boars in fully mature condition ranges from 500 to 600 pounds. The color is black with the exception of six white points, namely: the snout, the four feet, and the tip of the tail. White may appear on the forearm, shoulder or jowl



FIG. 140.—Berkshire boar.

without disqualification. One or more black points may also be present. However, they are objectionable, among most American breeders. The form is smooth, compact, and unusually neat, clean and trim in outline. The head is short, and either moderately or excessively dished, depending upon the fancy of the breeder. The face is broad, the poll usually wide, the ears erect and the neck and jowl smooth and firm. The Berkshire is unusually alert, expressive in facial outlines and possesses unusual refinement otherwise, being a typical show hog.

STANDARD OF EXCELLENCE AND SCALE OF POINTS FOR BERKSHIRE SWINE.

	Points.
COLOR.—Black, white feet, face and tip of tail, but skin and hair occasionally showing tinge of bronze or copper color. An occasional splash of white not objectionable; lack of either of white points admissible	3
FACE AND SNOUT.—Face well dished and broad between eyes; snout short and broad	7
EYES.—Prominent, clean, clear, large, dark hazel or gray	2
EARS.—Medium size, setting well apart, carried fairly erect, inclining forward, especially with age	3
JOWL.—Full, firm, not flabby or hanging too low, running back well on neck	3
NECK.—Full, short and slightly arched, broad on top, well connected with shoulder	3
HAIR.—Fine, straight, smooth, lying close to and covering the body well; free from bristles	3
SKIN.—Smooth and mellow	3
CHEST.—Deep, full and wide, with good heart girth	6
SHOULDER.—Smooth and even on top and in line with side	6
SIDE.—Deep, smooth, well let down, straight side and bottom lines	6
BACK.—Broad, full, strong, level or slightly arched; ribs well sprung	10
FLANK.—Extending well back and low down on leg, making nearly a straight line with lower part of side	5
LOIN.—Full, wide and well covered with flesh	6
HAM.—Deep, wide, thick and firm, extending well up on back and holding thickness well down to hock	10
TAIL.—Well up on line with back, neither too fine, short or tapering	2
LEGS AND FEET.—Straight and strong, set wide apart, short in pastern, with hoofs nearly erect, capable of carrying great weight	10
SIZE.—Size all that is possible without loss of quality or symmetry with good length. Weight in good condition, boars at 12 months, 350 to 450 pounds; at 24 months, 500 to 700 pounds; sows at 12 months, 350 to 400 pounds; at 24 months, 500 to 700 pounds	6
APPEARANCE AND CHARACTER.—Vigorous, attractive, of good disposition, firm and easy movement	6
Total	100

Poland-China.—The Poland-China ranks as one of the extreme fat breeds. It is an American product characterized by an unusual prevalence or accumulation of outside fat. The weight of boars may reach as high as 500 to 600 pounds or more in mature breeding specimens. Like the Berkshire, the breed is characterized by a solid black color

with the exception of six white points, namely, the snout, four feet and tip of tail. One or more black points are sometimes found but they are not desirable. This, however, is a fad or fancy adhered to by breeders. One of the chief objections to the Poland-China is the method of breeding which has been followed, this reducing the size and vigor of the breed as a whole. The modern type of animal is characterized by larger bone, more vigor, and rustling qualities. In the last decade considerable attention has been given to the improvement of the breed in these respects. The head of the Poland-China is broad and short, the face



FIG. 141.—Poland-China boar.

usually straight, the neck short and full, the body long, wide, deep, and the animal as a whole comparatively low set. Ears which best characterize the breed are semidrooping, the upper one-third of the ear breaking over. The jowl is usually heavy, the legs short, and the thighs plump. Lack of size, small litters, a drooping rump, and inferior rustling qualities are the chief faults.

The breeding of the Big Bone Poland-China has in a measure corrected these faults. Increase in size of bone, stronger constitution and more scale have added greatly to the value of the breed.

STANDARD OF EXCELLENCE AND SCALE OF POINTS FOR POLAND-CHINA SWINE.

Points.

HEAD AND FACE.—Head short and wide; cheeks full; jaws broad, forehead high and wide; face short, smooth, wide between the eyes, tapering from eyes to point of nose and slightly dished surface, even and regular	4
<i>Objections:</i> Head long, narrow, coarse; forehead low and narrow or contracted, lower jaw extending beyond upper; face long; straight and narrow between the eyes; nose coarse, thick or crooked, ridgy, or dished as much as a Berkshire.	
EYES.—Large, prominent, bright, lively, clear and free from wrinkled or fat surroundings	2
<i>Objections:</i> Small, dull, bloodshot, deepset or obscure; vision impaired by wrinkles, fat or other causes.	
EARS.—Small, thin, soft, silky, attached to the head by a short and small knuck, tips pointing forward and slightly outward, and the forward half drooping gracefully, fully under control of animal, both of same size, position and shape	2
NECK.—Wide, deep, short, and nicely arched at top from poll of head to shoulder	2
<i>Objections:</i> Long, narrow, thin, flat on top, not extending down to breast bone, tucked up.	
JOWL.—Full, broad, deep, smooth and firm, carrying fulness back to near point of shoulders, and below line of lower jaw, so that lower line will be as low as breast-bone when head is carried up level	2
<i>Objections:</i> Light, flabby, thin, wedge-shaped, deeply wrinkled, not drooping below line of lower jaw and not carrying fulness back to shoulder and brisket.	
SHOULDER.—Broad, deep and full, not extending above the line of back and being as wide on top as on back, carrying size down to line of belly and having good lateral width	6
<i>Objections:</i> Narrow and not same depth as body, narrow at top or bottom, extending above line of back, less than body in breadth at top or bottom portions, or lacking in lateral width, shields on boars under eight months of age, or large, heavy shields on hogs under eighteen months of age.	
CHEST.—Large, wide, deep, roomy, indicating plenty of room for vital organs, making a large girth just back of shoulders, the breast-bone extending forward so as to show slightly in front of the legs and extending in a straight line back to end of breast-bone, showing a width of not less than six inches between forelegs in a large, full-grown hog	12
<i>Objections:</i> Flat, pinched, narrow at top or either end of breast-bone; breast-bone crooked or not extending slightly in front of forelegs.	
BACK AND LOIN.—Broad, straight or slightly arched, carrying same width from shoulder to ham, surface even, smooth, free from lumps, crease or projection, not too long, but broad on top, indicating well-sprung ribs, should not be higher at top than at shoulder, and should not fill at junction with side so that a straight-edge placed along top of side will touch all the way from point of shoulder to point of ham; should be shorter than lower belly line	14
Carried forward	44

	Points.
Brought forward	44
<i>Objections:</i> Narrow, creased back of shoulders, swayed or hollow, drooping below a straight line, humped or wrinkled, too long, or sunfish shaped, loin high, narrow, depressed or uneven, width at side not as much as shoulder and ham.	
SIDES AND RIBS. —Sides full, smooth, firm and deep, carrying sides down to belly and evenly from ham to shoulder, ribs long, strong, well sprung at top and bottom	10
<i>Objections:</i> Flat, thin, flabby, pinched, not as full at bottom as at top, drawn in at shoulder so as to produce a crease, or pinched or tucked up and in as it approaches the ham, lumpy, or uneven surface, ribs flat or too short.	
BELLY AND FLANK. —Wide, straight and full, dropping as low as flank at bottom of chest, back of foreleg, making a straight line from lorelegs to hindlegs; flank full and out even with surrounding portions of body, belly at that point dropping down on a line with lower line of chest; the loose skin connecting ham and belly being on a line even with bottom of side	4
<i>Objections:</i> Belly narrow, pinched, sagging or flabby, flank thin, tucked up or drawn in.	
HAMS AND RUMP. —Hams broad, full, long and wide. They should be as wide at point of the hip as at the swell of ham. Buttocks large and full, should project beyond and come down upon and fill full between the hocks. The lower front part of the ham should be full, and stifle well covered with flesh and a gradual rounding toward the hock. Rump should have a rounded slope from loin to root of tail; same width as back and filling out full on each side and above the tail	10
<i>Objections:</i> Ham narrow, short, thin, not projecting beyond and coming down to hock; cut up too high in crotch twist; lacking in fullness at top and bottom, lacking in width from stifle straight back, lower forepart thin and flat, straight from root of tail to hock; buttocks light, thin or flabby. Rump flat, narrow and peaked at root of tail, too steep.	
FEET AND LEGS. —Legs medium length, straight, set well apart and squarely under body, tapering, well muscled and wide above knee and hock, below hock and knee round and tapering, capable of sustaining weight of an animal in full flesh without breaking down, bone firm and fine texture, pasterns short and nearly upright; feet firm, short, tough and free from defects	10
<i>Objections:</i> Legs long, slim, coarse, crooked, muscles small above hock and knee, bone large, coarse, as large at foot as above knee, pasterns long and slim, crooked or weak, the hocks turned in or out of straight line, legs too close together, hoofs long, slim and weak, toes spreading or crooked or unable to bear up weight of animal without breaking down.	
TAIL. —Well set on, smooth, tapering and carried in a curl	1
<i>Objections:</i> Coarse, long, crooked or hanging straight down like a rope.	
COAT. —Fine, straight, smooth, laying close to and covering the body well, not clipped, evenly distributed over the body	3
Carried forward	82

	Points.
Brought forward	82
<i>Objections:</i> Bristles, hair coarse, harsh, thin, wavy or curly, swirls, standing up, ends of hair split and brown, not evenly distributed over all the body except belly. Clipped coats should be cut 1.5 points.	
COLOR. —Black, with white in face and lower jaw, white on feet and tip of tail, a few small, clear white spots on body not objectionable	4
<i>Objections:</i> Solid black, more than one-fourth white, sandy hair in spots, a grizzled or speckled appearance.	
SIZE. —Large for age and condition. Boars two years old and over if in good flesh, should weigh not less than 500 pounds. Sows same age and condition, not less than 450 pounds. Boars eighteen months old, in good condition, not less than 400 pounds; sows 350 pounds. Boars twelve months old, not less than 300 pounds; sows 300 pounds. Boars and sows six months old, not less than 150 pounds. Other ages in proportion . . .	5
<i>Objections:</i> Overgrowth, coarse, gangling, or hard to fatten at any age.	
ACTION AND STYLE. —Action easy, vigorous, quick and graceful. Style attractive, high carriage and in male testicles should be of same size and carriage readily seen and yet not too large . .	3
<i>Objections:</i> Slow, dull, clumsy, awkward, difficulty in getting up when down, low carriage, wabbling walk. In males testicles not easily seen, not of same size or carriage, too large, or only one showing.	
CONDITION. —Healthy, skin clear of scurf, scales or sores, soft and mellow to the touch, flesh fine, evenly laid on and free from lumps or wrinkles. Hair soft and lying close to the body, good feeding qualities	2
<i>Objections:</i> Unhealthy skin, scaly, wrinkly, scabby, or harsh, flabbiness or lumpy flesh, too much fat for breeding. Hair harsh, dry and standing up from body, poor feeders, deafness, partial or total.	
DISPOSITION. —Quiet, gentle and easily handled	2
<i>Objections:</i> Cross, restless, vicious or wild.	
Symmetry of points	2
Total	100

DISQUALIFICATIONS.

FORM.—Upright ears; small, cramped chest; crease back of shoulders and over back so as to cause a depression in back easily noticed; deformed or badly crooked legs; feet broken down so that animal walks on pastern joints.

SIZE.—China build or not two-thirds large enough for age.

CONDITION.—Excessive fatness; barrenness; deformed; seriously diseased; total blindness, caused by defective eyes, or by reason of fat or loose and wrinkled skin over the eyes.

SCORE.—Less than sixty points.

PEDIGREE.—Not eligible to record.

Duroc-Jersey.—The Duroc-Jersey is one of the leading fat breeds. It is characterized by a red color which may vary from light to dark. A tendency to black is objectionable, a cherry red color being preferred. The size of the Duroc-Jersey is on the average about the same as the Poland-China or Chester White. Mature boars may reach as high as 600 pounds or more in weight, the sows averaging 100 pounds less at the same age and condition. The breed has good rustling qualities and is very popular in many sections. A tendency to coarse bone and lack of refinement

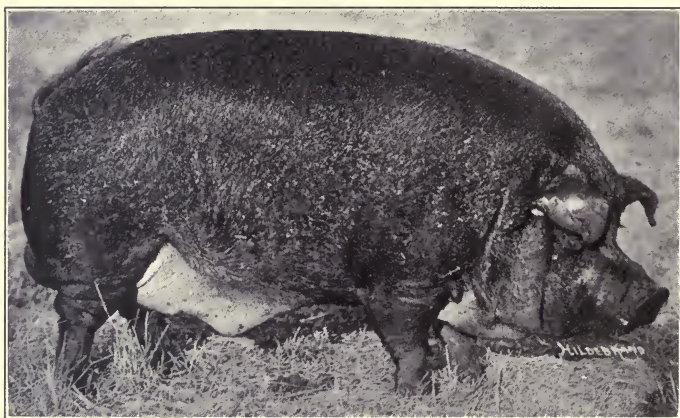


FIG. 142.—Duroc-Jersey boar.

are objections to the breed. The head is reasonably short with a moderate dish. The ears are drooping or arching in appearance. The neck is short and full, the shoulders reasonably compact, the sides of good length and the quarters or thighs reasonably smooth and well filled. The principal points in favor of the breed are the size, rustling qualities, and their economic producing qualities. Excessive fat formation, lack of quality, smoothness, and refinement are the principal objections. As a whole, however, the breed conforms very closely to the fat-hog type. In many respects it favors the Poland-China in size, general form and finish.

SCALE OF POINTS FOR DUROC-JERSEY SWINE.

	Points.
Head	4
Eyes	2
Ears	2
Neck	2
Jowl	2
Shoulder	6
Chest	12
Back and Loin	14
Sides and Ribs	9
Belly and Flank	4
Ham and Rump	10
Feet and Legs	9
Tail	1
Coat	3
Color	2
Size	8
Action and Style	3
Condition	2
Disposition ¹	2
Symmetry of Points	3
Total	100

Chester White.—The Chester White breed received its name from the solid white color characteristics.¹ Bluish

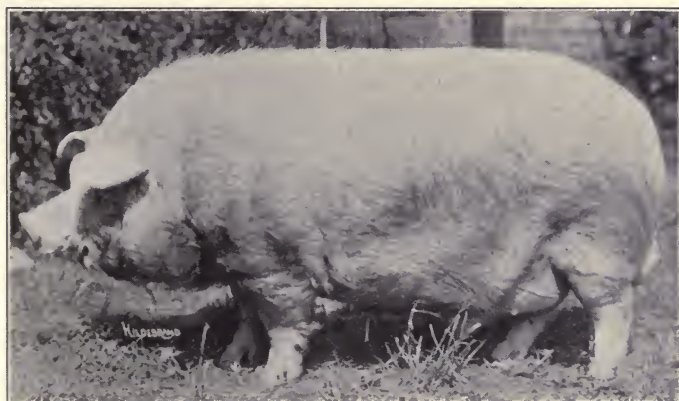


FIG. 143.—Chester White boar.

spots on the skin are permissible. The breed ranks as a strictly fat breed. Mature boars range in weight from 500

¹ Originated in Chester County, Pa.

to 650 pounds. It ranks in size with the other leading fat breeds. One of the principal objections to it is its general lack of refinement. The ears are often heavy and extremely pendant, the shoulders prominent, and the hair coarse and curly. The head is rather large, the face straight, the jowl large and the body proper inclined to be rough. The breed has the extreme tendency to narrow materially from the fore- to the hindquarters.

The O. I. C. breed, meaning the Ohio Improved Chester White, is merely an offspring from the original Chester White, having been decidedly improved in quality and conformation. The size has been somewhat decreased and the attributes of quality and compactness introduced. Considered as a whole, the improved form of the Chester White is a very acceptable breed. The body has good width and carries out well. Coarseness in bone, prominent shoulders and general lack of quality are still faults, however, with some specimens of the breed.

STANDARD OF EXCELLENCE AND SCALE OF POINTS FOR O. I. C.
SWINE.

	Points.
COLOR. —White. Black spots in hair disqualify, but blue spots in hide (commonly known as freckles), while objectionable, do not argue impurity of blood	2
<i>Objections:</i> Color any other than white.	
HEAD AND FACE. —Head short and wide; cheeks neat (not too full); jaws broad and strong; forehead medium, high and wide; face short and smooth; wide between the eyes, which should be prominent, clear, and bright and free from fat surroundings; nose neat, tapering and slightly dished	5
<i>Objections:</i> Head long, narrow or coarse; forehead low and narrow; jaws contracted and weak; face long, narrow and straight; nose coarse, clumsy or dished like a Berkshire; eyes small, deeply sunken or obscure; impaired vision.	
EARS. —Medium size; soft; not too thick; not clumsy; pointing forward and slightly outward; drooping gracefully and fully under control of the animal	2
<i>Objections:</i> Too large or too small; coarse; thick; stiff or upright, drooping too close to face; not under control.	
BRISKET. —Full; well let down; joined well to jowl in line with belly	3
<i>Objections:</i> Narrow; tucked up or depressed.	
JOWL. —Smooth; neat; firm; full; carrying fulness well back to shoulders and brisket when head is carried up level	2
<i>Objections:</i> Light; rough and deeply wrinkled; too large and flabby; not carrying fulness back to shoulders and brisket.	
Carried forward	14

	Points.
Brought forward	14
NECK.—Wide; deep; short and nicely arched; neatly tapering from head to shoulder	3
<i>Objections:</i> Narrow, thin; long; flat on top; tucked up; not extending down to breast-bone.	
SHOULDERS.—Broad; deep and full; extending in line with the side, and carrying size down to line of belly	6
<i>Objections:</i> Deficient in width or depth; extending above line of back; thick beyond line of side and hams; shields on boars too coarse and prominent.	
CHEST AND HEART GIRTH.—Full around the heart and back of the shoulders; ribs extending well down; wide and full back of forelegs	10
<i>Objections:</i> Narrow; pinched; heart girth less than flank measure or length of body from top of head to root of tail; or creased back of shoulders.	
BACK.—Broad; straight or slightly arched; uniform width; free from lumps or rolls; same height and width at shoulder as at ham	7
<i>Objections:</i> Narrow; swayed; humped; creasing back of shoulders; sunfish-shaped; uneven width; lumps or rolls.	
SIDES.—Full; smooth; deep; carrying size down to line of belly; even with line of ham and shoulder	5
<i>Objections:</i> Flat; thin; flabby; uneven surface; compressed at bottom; shrunken at shoulder and ham.	
RIBS.—Long; well sprung at top and bottom; giving animal a square form	7
<i>Objections:</i> Too short; flat.	
LOIN.—Broad and full	7
<i>Objections:</i> Narrow; depressed.	
BELLY.—Same width as back; full; straight; drooping as low at flank as at bottom of chest; line of lower edge running parallel with sides	4
<i>Objections:</i> Narrow; pinched; sagging or flabby.	
FLANK.—Full and even with body	2
<i>Objections:</i> Thin, tucked up or drawn in.	
HAM AND RUMP.—Broad; full; long; wide and deep; admitting of no swells; buttock full, neat and clean; stifle well covered with flesh, nicely tapering toward the hock; rump slightly rounding from loin to root of tail, same width as back, making an even line with sides	10
<i>Objections:</i> Narrow; short; not filled out to stifle; too much cut up in crotch or twist; not coming down to hock; buttocks flabby; rump flat, narrow, too long, too steep, sharp or peaked at root of tail.	
TAIL.—Small; smooth; nicely tapering; root slightly covered with flesh; carried in a curl	2
<i>Objections:</i> Coarse; too long; clumsy; straight.	
LEGS.—Medium length; strong and straight; set well apart and well under body; bone of good size; firm; well muscled; wide above knee and hock, round and tapering below knee and hock, enabling the animal to carry its weight with ease; pasterns short and nearly upright	5
Carried forward	82

	Points.
Brought forward	82
<i>Objections:</i> Too short or too long; weak; crooked; too close together; muscles weak; bone too large and coarse, without taper; pasterns long, crooked or slim.	
FEET. —Short; firm; tough; animal standing well up on toes . .	8
<i>Objections:</i> Hoofs long, slim, weak; toes spreading, crooked or turned up.	
COAT. —Fine; either straight or wavy, with preference for straight; evenly distributed and covering the body well; nicely clipped coats, no objection	3
<i>Objections:</i> Bristles; swirls; hair coarse, thin, standing up, not evenly distributed over all the body except the belly.	
ACTION. —Easy and graceful; high carriage; active; gentle and easily handled. In males testicles should be readily seen, and of same size and carriage	3
<i>Objections:</i> Sluggish; awkward; low carriage; wild; vicious. In males, testicles not distinctly visible, or not of same size and carriage.	
SYMMETRY. —A fit proportion of the several parts of the body to each other, forming a harmonious combination	4
<i>Objections:</i> A disproportionate development in one or more points; or lack of proper development in any point.	
Total	100

Hampshire.—The Hampshire or Thin Rind, as it is sometimes designated, is said to be a native of Hampshire, England, although the origin is somewhat obscure. The breed is usually characterized by a white belt, which completely encircles the body, beginning at the back of the forelegs or shoulder origin and extending back, sometimes about midway on the body. The forefeet and legs are usually white, the remainder of the body being solid black. Some animals are almost pure black. This standard is used sometimes to avoid the extension of the belt over the body which should range from four to twelve inches wide. Black specimens are not uncommon. The breed has been classed both in the fat and bacon types. Barrows have been shown mostly in fat classes. The size of the Hampshire ranges from 400 to 500 pounds in mature breeding males. Usually, however, this weight is not obtained under average conditions. The head of the Hampshire is of medium size, the face straight, and rather long and full. The ears are usually erect, the jowl is trim, the shoulders smooth and compact, the back slightly arched, the sides smooth and

deep, thus characterizing good, useful form. The legs are somewhat long, although reasonably strong and straight. The breed is very popular considering the time of introduction into this country. It has shown a good account of itself in individual, lot, and car-load showings in some of the larger live stock shows.

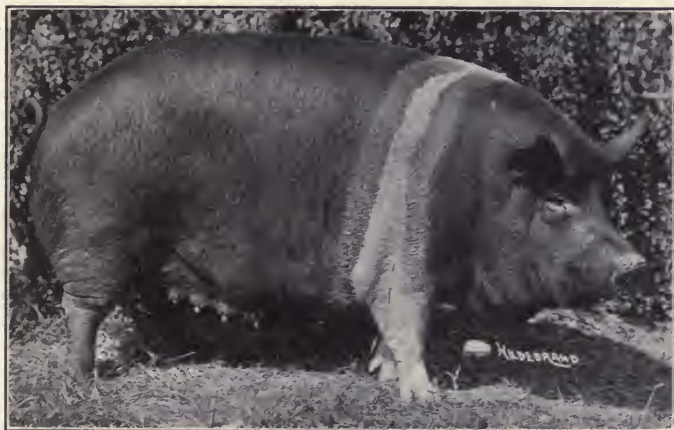


FIG. 144.—Hampshire sow.

STANDARD OF EXCELLENCE AND SCALE OF POINTS FOR HAMPSHIRE SWINE.

	Points.
HEAD AND FACE. —Head medium length, rather narrow, cheeks not full; face nearly straight and medium width between the eyes, surface even and regular	4
<i>Objections:</i> Head large, coarse and ridgy, nose crooked or much dished.	
EYES. —Bright and lively, free from wrinkles or fat surroundings	2
<i>Objections:</i> Small, deep or obscure, or vision impaired by fat or other cause.	
EARS. —Medium length, thin, slightly inclined outward and forward	2
<i>Objections:</i> Large, coarse, thick, large or long knuck, drooping or not under good control of the animal.	
NECK. —Short, well set to the shoulders, tapering from shoulder to head	2
<i>Objections:</i> Long, thick or bulky.	
JOWL. —Light and tapering from neck to point, neat and firm	2
<i>Objections:</i> Large, broad, deep or flabby.	
SHOULDERS. —Deep, medium width and fulness, well in line with back	6
<i>Objections:</i> Narrow on top or bottom, thick beyond line with sides and hams.	
Carried forward	18

	Points.
Brought forward	18
CHEST.—Large, deep and roomy; full girth, extending down even with line of belly	12
<i>Objections:</i> Narrow at top or bottom; small girth, cramped or tucked up.	
BACK AND LOIN.—Back straight or slightly arched; medium breadth, with nearly uniform thickness from shoulders to hams and full at loins; sometimes higher at hips than at shoulders	15
<i>Objections:</i> Narrow, creased or dropped behind shoulders; surface ridgy or uneven.	
SIDES AND RIBS.—Sides smooth, full, firm, carry size evenly from shoulders to hams; ribs strong, well sprung at top and bottom	8
<i>Objections:</i> Sides thin, flat, flabby or creased; ribs not well sprung.	
BELLY AND FLANK.—Straight and full, devoid of grossness; flank full and running nearly on line with sides	6
<i>Objections:</i> Belly sagging or flabby; flank thin or tucked up.	
HAMS AND RUMP.—Hams of medium width, long and deep; rump slightly rounded from loin to root of tail; buttock full, neat and firm, devoid of flabbiness or excessive fat	10
<i>Objections:</i> Ham narrow, cut too high in crotch, buttock flabby, rump too fat, too narrow or too steep, or peeked at root of tail.	
LEGS AND FEET.—Legs medium length, set well apart and squarely under body, wide above knee and hock, and rounded and well muscled below, tapering, bone medium, pasterns short and nearly upright, toes short and firm, enabling the animal to carry its weight with ease	10
<i>Objections:</i> Legs too long, slim, crooked, coarse or short; weak muscles above hock and knee-bone large and coarse and legs without taper, pasterns too long to correspond with length of leg, too crooked or too slender; feet long, slim and weak; toes spreading, too long, crooked or turned up.	
TAIL.—Medium length, slightly curled	1
<i>Objections:</i> Coarse, long, clumsy, swinging like a pendulum.	
COAT.—Fine, straight, smooth	2
<i>Objections:</i> Bristles or swirls, coarse or curly.	
COLOR.—Black, with exception of white belt encircling body, including forelegs	2
<i>Objections:</i> White running high on hindlegs, or extending more than one-fourth length of body, or solid black.	
SIZE.—Large for conditions: boar, two years and over, 450; sow, same age, 400; eighteen months boar, 350; sow, 325; twelve months boar or sow, 300; six months, both sexes, 140	5
ACTION AND STYLE.—Active, vigorous; quick and graceful; style, attractive and spirited	4
<i>Objections:</i> Dull, sluggish and clumsy.	
CONDITION.—Healthy, skin free from all defects, flesh evenly laid on and smooth and firm, not patchy, and devoid of all excess of grossness	4
<i>Objections:</i> Skin scurfy, scaly, mangy or otherwise unhealthy; hair harsh, dwarfed or cramped, not growthy.	
DISPOSITION.—Docile, quiet and easily handled	3
<i>Objections:</i> Cross, restless, vicious or with no ambition.	

Total 100

DISQUALIFICATIONS.

COLOR.—Spotted or more than two-thirds white.

FORM.—Any radical deformity, ears very large or drooping over eyes, crooked or weak legs or broken-down feet.

CONDITION.—Seriously impaired or diseased, excessive grossness, barrenness in animals over two years of age, chuffy or squabby fat.

SIZE.—Not two-thirds standard weight.

PEDIGREE.—Not eligible to record.

Middle Yorkshire.—The Middle Yorkshire is a smaller and fatter type of animal than the Large Yorkshire, which is a strictly bacon breed. The color is white and the size ranks between the large and small types of the breed. This is not a recognized breed in the same sense as the Large or Small Yorkshire. In many instances it is the result of a cross between the Large and Small Yorkshire breeds, which class in the bacon and fat type respectively. Although bred in this way the Middle Yorkshire is more of a fat type of hog, thus more nearly meeting the American ideal in respect to form and finish than the Large or Small Yorkshire, the latter being too small when matured to be an economic producer. The Large Yorkshire is the only type of this breed of importance in this country. Knowledge of Middle Yorkshire characteristics is therefore more important from an authoritative than from a practical standpoint. Middle Yorkshires are recognized as a breed in their original home. Compared with the Large Yorkshire, this breed is smaller, having greater fat-producing qualifications and more refinement in form and finish.

Small Yorkshire.—The Small Yorkshire belongs to the fat type, although it is not important, as a breed, in this country. The size is small, ranking as one of the lightest breeds of swine produced. The weight ranges on the average from 175 to 200 pounds at maturity. In a general way it is comparable in form to the Essex. The color is solid white the same as the large type of the breed. Black spots may occur on the skin. The form is rather square and compact, specimens of the breed being easily fattened at almost any stage of natural maturity. The head is short, the neck full and firm, the jowl compact, the body comparatively short, although quite deep and symmetrical.

The hindquarters are full, plump and extend well down to the hocks. The quality of the breed is very good, although the carcass contains too much fat and therefore is not in special market demand. Pigs from this breed are used often for roasting purposes. The chief objections to them are the small size, excessive amount of fat and rather slow maturing qualities. Information is of interest more from an authoritative than from a practical standpoint.

Essex.—The Essex breed of swine has never become popular primarily because of its small size. It is reasonably early maturing and from this standpoint is acceptable, although it is not an economical producer of pork. It ranks among the smallest of the breeds. The breed color is solid black, without exception. The body is rather cylindrical in form, having reasonably good length and depth of body. The head is short and broad, the face slightly dished, the ears small and usually erect, the neck short and compact, the back slightly arched, the sides smooth and the quarters and thighs very well developed. The quality ranks well, the bone being of medium size and fine texture. The hair is usually fine, straight, smooth, and uniformly distributed over the body. The shoulders are smooth and compact, the jowl trim, neat and closely carried. The breed is not adapted to productive swine husbandry, at least on a large scale. The chief objection is in the size and weight attained. This breed represents one of the extreme fat types of English production, the origin being in the county of Essex.

Victoria.—The Victoria breed is of two types, one originating in Indiana and the other in New York. The former is the result of crossing several of the leading breeds already discussed, principally the Poland-China, Berkshire, Chester White, and Suffolk. It belongs to the fat-hog type, although it is not popular or widely disseminated. The size of the Victoria ranges from 400 to 550 pounds at maturity. The breed is characterized by a solid white color. The body is broad, comparatively deep and long. The head is broad and the face moderately dished. The ears are medium in size and semierect, although they are inclined sometimes to

droop. The quality is very good, the hair being of medium length, straight and fine in quality. The body is comparatively low set and compact. The shoulders are inclined to be thick and heavy at times, thus making the animal appear narrow over the loin and through the hindquarters. This breed has not been widely introduced into the swine producing sections. It has been much more popular in the states where it originated. On the whole, the breed is not relatively important as it has no special qualifications over other breeds. The type originated in New York is likely extinct.

Cheshire.—The Cheshire breed is not an important breed except under localized conditions. It ranks in the middle-weight class, the weight ranging from 400 to 600 pounds in well-matured specimens. This represents the extreme, however, as the average is considerably lower. The color is pure white, although black spots sometimes occur on the skin. The form is reasonably straight and smooth in outline. The head and face are inclined to be long and the latter slightly dished. The ears are small and usually erect. The back is slightly arched and attains quite good width. The shoulders are smooth and compact, the sides straight and smooth, although somewhat lacking in depth. The quality is good, the bone being quite fine and the hair smooth, straight, and evenly distributed. The principal merit of the breed is its quality and refinement. Economic conditions have not fostered the development of this breed, owing to the better adaptation of other standard qualified breeds. The Cheshire originated in the northern part of New York where the climate is cold and not especially suited to swine growing.

STANDARD OF EXCELLENCE AND SCALE OF POINTS FOR CHESHIRE SWINE.

FORM.—Short to medium in length, short in proportion to length of body; face somewhat dished and wide between the eyes; ears small, erect, in old animals often slightly pointed forward; neck short; shoulders broad and full; hips broad, body long, broad and deep; hams broad, nearly straight with back, and running well down toward hock; legs long and slim, set well apart and supporting the body on the toes; tail small and slim; hair fine, medium in thickness and quantity; color white. When grown and well fattened should dress from 400 to 600 pounds.

SCALE OF POINTS.

	Points.
HEAD.—Short to medium in length, short in proportion to length of body	8
FACE.—Somewhat dished and wide between the eyes	8
JOWL.—Medium in fulness	3
EARS.—Small, fine, erect, and in old animals slightly pointing forward	5
NECK.—Short and broad	3
SHOULDERS.—Broad, full and deep	6
GIRTH.—Around heart	8
BACK.—Long, broad and straight nearly to root of tail	10
SIDE.—Deep and full, nearly straight on bottom line	7
FLANK.—Well back and low down, making flank girth nearly equal to heart girth	3
HAMS.—Broad and nearly straight with back, and running down well over toward hock	10
LEGS.—Small and slim, set well apart, supporting body well on toes	10
TAIL.—Small, slim and tapering	3
HAIR.—Fine, medium in thickness and quantity	3
COLOR.—White, and colored hairs to disqualify, color or spots in skin objectionable	2
SKIN.—Fine and pliable, small blue spots objectionable, but allowable	3
SYMMETRY.—Animal well proportioned, handsome and stylish	8
Total	100

Mule-foot Swine.—The Mule-foot breed of swine derives its name from the peculiar structure of the foot which does not have the cleft or division in the hoof. The origin is not authoritatively known. The breed has been introduced in a few states, principally through the middle west, but has not gained a wide foothold. The breed is medium in size, solid black in color and only fair in refinement and maturing qualities. A few herds have been shown at various fairs throughout the country where they have attracted special attention from the standpoint of curiosity. One of the serious objections to the breed is its inability to withstand heavy feeding. Moderate or excessive weight causes animals to break down in the pasterns or weaken otherwise in the feet which are small, narrow, and contracted. The breed has been advertised as being immune from cholera infestation, but practical tests have not indicated the reliability of these statements. The breed is not important at the present time. It is more interesting from an authoritative and breed-description standpoint than from practical utility.

SCALE OF POINTS FOR MULE-FOOT SWINE.

	Points.
Head and Face	4
Eyes	2
Ears	2
Neck	2
Jowl	2
Shoulder	6
Chest	12
Back and Loin	15
Sides and Ribs	8
Belly and Flank	6
Ham and Rump	10
Feet and Legs	10
Tail	1
Coat	2
Color	2
Size	5
Action and Style	4
Condition	4
Disposition	3
Total	100

Bacon Type.—The former discussion on the hog has been especially significant of the fat or lard type of animal, which is so designated because of the large amount of fat stored in the finished animal and the ultimate use made of it. The bacon hog is so designated because of the specific products which are made from it. Practically the entire carcass of the bacon type of hog is converted into products which go on the market as cured bacon. The sides are ultimately cut into bacon strips. Because of the use made of the bacon hog, it is extremely important that animals purporting to represent this type attain a definite fixed form. Thin or half-fat hogs of the fat type will not make high-class bacon products.

Origin and Uses.—The bacon hog is characterized by uniform interspersing of the fat and lean tissues, with a comparatively small amount placed on the outside of the body. A thin or medium-conditioned fat type of hog will not produce the desirable results. The bacon type is the result of breeding for this specific purpose and feeding such rations that the quality of the product will be most acceptable to the trade. In the lard hog bacon is a by-product of pork

and lard production. In the bacon hog the bacon products are of primary consideration, there being practically no by-products as in the fat or lard type. Bacon is obtained from the fat type of hog from the lower part of the side, between the shoulder and ham regions. This is one specific product obtained from the fat hog. The whole carcass of the bacon type is ultimately placed on the market as bacon-hog products which thus designates the specific purpose of the animal.

SCORE CARD FOR BACON HOGS.

Carcass Examination.

	Perfect score.
GENERAL APPEARANCE:	
<i>Skin:</i> thin, mellow, smooth	5
<i>Form:</i> long, deep in proportion to thickness	10
<i>Quality:</i> flesh, firm, even, streaked with fat and lean; back fat, thin; bone dense	20
<i>Kidney fat:</i> white, firm	5
CARCASS:	
<i>Head:</i> fine, neat, longer than in lard hog	2
<i>Neck:</i> short, not heavy	3
<i>Shoulders:</i> smooth, well covered	10
<i>Sides:</i> long, deep, evenly fleshed, firm; loin heavy	25
<i>Hams:</i> large, plump, firm; light covering of fat	20
Total	100

Weight.—The weight of the bacon type of hog averages less than that of the fat type. Animals weighing from 180 to 190 pounds are in greatest demand for bacon-producing purposes. The bacon type represents a strictly finished product from the market standpoint. A smaller, unfinished lard type of hog should not be confused with it. Weight and form in the bacon hog are of special significance. Either over- or underweight with lack of proper smoothness, quality, and finish disqualify an animal for the most discriminating purposes.

Quality.—Quality in the bacon hog corresponds very closely in its attainments to the most desirable acquisition of this characteristic in the fat animal. In bacon hogs there is a more pronounced individuality of the correlated parts, thus emphasizing the clear-cut form and features indicative of general quality. The head should be clear cut,

smooth in outline, the jowl comparatively small and trim, the ears of medium size, the neck smooth and comparatively long, the shoulders smooth and compact, the sides long, smooth, and even, bone of medium size and dense, trim underline, and a fine, silky coat of hair. Other indications are signified by the general refinement in form and individuality.

Conformation.—Compared with the fat type of hog, the bacon animal is longer, narrower, and deeper in the body.

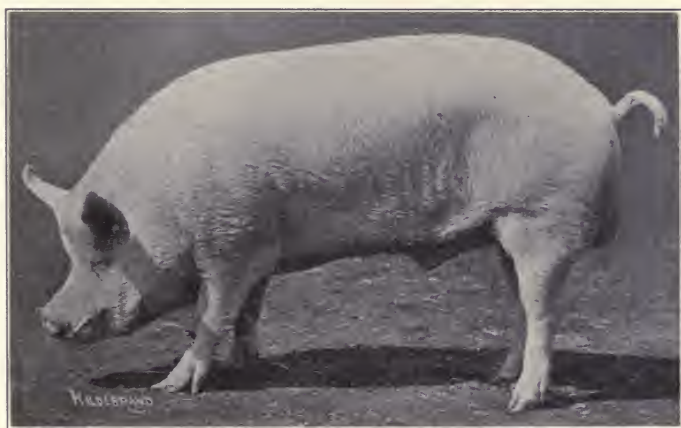


FIG. 145.—The bacon type exhibited in a Large Yorkshire.

The head is cleaner cut, the ears usually finer and more erect, the jowl smaller and smoother, the neck longer, the shoulders narrower and firmer, the sides longer, smoother, deeper, and more uniform, the quarters squarer, the thighs longer and thinner and the underline straighter, thus showing little waste.

Taken as a whole, the animal is characterized by more quality, cleaner-cut features, more trimness of form, less waste, higher station and straighter feet and legs. The ribs are not as broadly sprung, but extend lower, thus giving the characteristic straight, even sides.

Smoothness.—Smoothness and trimness of form in the bacon hog are of pronounced importance. A rough, coarse, large-jointed animal with heavy bone or folds or wrinkles in the shoulders, sides or thighs will not make a desirable bacon product. Such animals have too much loss in carcass weight, and when placed on the market the sides do not present the delicate, palatable appearance required. Rough animals make rough, coarse sides of bacon and are otherwise undesirable in quality and edibility.

Uniformity of Product.—Bacon hogs are produced under specific conditions where the proper kind of nitrogenous feeds are available. In Canada bacon hogs are produced largely to the exclusion of the fat type. Special breeds and feeds are utilized in the production of a uniform marketable product. The first acquisition of the producer of bacon should be a type of hog closely conforming to the accepted standard for bacon production. Unless the breeding is uniform this condition cannot be obtained in the finished product. Cross-bred animals of proper type may make an acceptable bacon product. However, indiscriminate breeding should not be resorted to in bacon production. Greater dissimilarity of type can be tolerated in the fat animal if the individuality and market condition are obtained. The bacon hog is a specific product bred under uniform conditions of breed, type, and feed requirements. Where these conditions prevail a most acceptable type of bacon hog can be produced. Uniformity of product can be obtained which will command a premium on the market.

Condition or Finish.—Condition or finish in the bacon type of hog is significant of the same requirements as in the fat animal. The degree and character of condition attained, however, is widely different. The fat animal accumulates a large amount of fat, especially over the outside body region. The bacon hog intersperses the fat and lean in so-called streaks throughout the carcass. The high finish obtained in the fat hog is not desirable or even acceptable in the bacon animal. There should be only a sufficient amount of fat accumulated over the outside of the body to give the sides smoothness, firmness, and to retain the succulence and flavor

of the product. From one to one and one-half inches of fat on the bacon hog is the accepted standard, while in the fat animal it may reach or exceed three or more inches.

Market Value.—Ordinarily, the bacon hog, when placed on the average market, will not sell above the fat-hog market. This is largely because the markets in the near and surrounding country do not generally demand this kind of a product. In sections where bacon production is specifically followed, as in Canada or Ireland, the bacon hog sells for a premium of fifty cents to one dollar per cwt. over the fat type of animal.

SCORE CARD FOR BACON HOGS.

Perfect score.

GENERAL APPEARANCE—36 Points.

<i>Weight:</i> 170 to 200 pounds, largely the result of thick cover of firm flesh	6
<i>Form:</i> long, level, smooth, deep	10
<i>Quality:</i> hair fine; skin thin; bone fine; firm, even covering of flesh without any soft bunches of fat or wrinkles	10
<i>Condition:</i> deep, uniform covering of flesh, especially in regions of valuable cuts	10

HEAD AND NECK—6 Points.

<i>Snout:</i> fine	1
<i>Eyes:</i> full, mild, bright	1
<i>Face:</i> slim	1
<i>Ears:</i> trim, medium size	1
<i>Jowl:</i> light, trim	1
<i>Neck:</i> medium length, light	1

FOREQUARTERS—10 Points.

<i>Shoulders:</i> free from roughness, smooth, compact and same width as back and hindquarters	6
<i>Breast:</i> moderately wide, full	2
<i>Legs:</i> straight, short, strong, bone clean; pasterns upright; feet medium size	2

BODY—34 Points.

<i>Chest:</i> deep, full girth	4
<i>Back:</i> medium and uniform in width, smooth	8
<i>Sides:</i> long, smooth, level from beginning of shoulders to end of hindquarters. The side at all points should touch a straight edge running from fore- to hindquarter	10
<i>Ribs:</i> deep	2
<i>Belly:</i> trim, firm, thick without any flabbiness or shrinkage at flank	10

HINDQUARTERS—14 Points.

<i>Hips:</i> smooth, wide; proportionate to rest of body	2
<i>Rump:</i> long, even, straight, rounded toward tail	2
<i>Gammon:</i> firm, rounded, tapering, fleshed deep and low toward hocks	8
<i>Legs:</i> straight, short, strong; feet medium size; bone clean; pasterns upright	2

Total	100
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Bacon Breeds.—The bacon breeds from the American production standpoint consist of the Large Yorkshire and the Tamworth. The Hampshire has been classed both as a fat and a bacon hog. It is of considerable interest and utility, both from market and show-yard standpoint for both purposes.

Large Yorkshire.—The Yorkshire breed of swine is of three distinct types, namely, the Large, Medium, and Small White. The Large type is the only one which has gained prominence in this country. The color is solid white, although bluish or black spots at times occur on the skin.



FIG. 146.—Large Yorkshire sow.

The body is long, comparatively deep and wide. The head is broad, the snout of medium length and slightly upturned. The ears are medium in size and should stand erect, although they are at times inclined to be pendant. The neck is of moderate length, the jowl reasonably trim, and the underline straight. The width of the back conforms to bacon requirements. The sides are long and full between the shoulders and hips. This breed ranks as one of the largest in size. Weights of 1000 pounds have been attained, although this is excessive. The Large Yorkshire is very popular in bacon production, although it is at times inclined to be somewhat coarse in quality and lacking in general refine-

ment. This breed is quite prevalent in bacon-producing countries, both in America and in its native home and surrounding countries. A weak loin and too much length of leg are objections in the breed.

STANDARD OF EXCELLENCE AND SCALE OF POINTS FOR LARGE
IMPROVED YORKSHIRE SWINE.

	Points.
GENERAL OUTLINE.—Long and deep in proportion to width, but not massive; slightly arched in the back, symmetrical and smooth, with body firmly supported by well-placed legs of medium length	5
OUTLINE OF HEAD.—Moderate in length and size, with lower jaw well sprung, and some dish toward snout, increasing with advancing maturity	4
FOREHEAD AND POLL.—Wide	1
JOWL.—Medium, not carried too far back, toward neck, and not flabby	1
EYE.—Medium size, clear and bright	1
SNOUT.—Turning upward with a short curve, increasing with age	1
EAR.—Medium in size, standing well out from head, nearly erect, but inclining slightly forward	1
NECK.—Of medium length, fair width and depth, rising gradually from poll to withers, muscular, but not gross, evenly connecting head with body	3
OUTLINE OF BODY.—Long, deep, and of medium breadth, equally wide at shoulder, side and hams; top line slightly arched, underline straight	7
BACK.—Moderately broad, even in width from end to end; strong in loin, short ribs of good length	10
SHOULDER.—Large, but not massive; not open above	6
ARM AND THIGH.—Broad and of medium length and development	2
BRISKET.—Wide and on a level with underline	3
SIDE.—Long, deep, straight and even from shoulder to hip	8
RIBS.—Well arched and deep	5
HEART GIRTH AND FLANK GIRTH.—Good and about equal	8
HINDQUARTERS.—Long to correspond with shoulder and side, deep with moderate and gradual droop to tail	5
HAM.—Large, well let down on thigh and twist and rear outline somewhat rounded	10
TWIST.—Well down and meaty	1
TAIL.—Medium, not much inclined to curl	1
LEGS.—Medium in length, strong, not coarse, but standing straight and firm	5
HAIR.—Abundant, long, of medium fineness without any bristles	4
SKIN.—Smooth and white, without scales, but dark spots in skin do not disqualify	2
COLOR.—White on every part	1
MOVEMENT.—Active, but not restless	5

Total 100

Tamworth.—The Tamworth, like the Large Yorkshire is one of the largest breeds. Excessive weights have been attained, although average male animals will weigh between 550 and 650 pounds. The color is solid red, the shades varying from light to dark, a medium color being preferred. Blackish spots on the skin are objectionable. This breed is long and deep compared with its width. There is considerable inclination toward upstanding qualities although this is significant to a certain extent with bacon breeds. The head and snout are rather long and pointed,

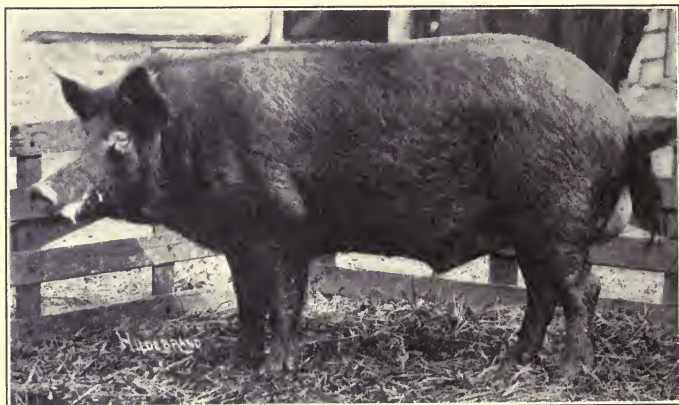


FIG. 147.—Tamworth boar.

the face narrow, and the jowl light and trim. The eyes are large and bright, the ears large and erect or semidrooping. The shoulders are usually smooth but of extreme width. The back is slightly arched, the sides long, smooth and deep and the quarters and thighs moderately developed. The quality is very good, the breed ranking well in bacon production. The chief objections to the Tamworth are its late maturing qualities, its lack of width and high-standing body. The breed has never become generally popular with American breeders owing to the extreme type as compared with the fat hog. The temperament of the Tamworth is active, the breed on the whole possessing good rustling qualities.

Long legs and prominent shoulders are other objections to the breed.

STANDARD OF EXCELLENCE FOR TAMWORTH SWINE.

- COLOR.**—Golden red hair on a flesh-colored skin, free from black.
HEAD.—Fairly long, snout moderately long and quite straight, face slightly dished, wide between ears.
EARS.—Rather large, with fine fringe, carried rigid and inclined slightly forward.
NECK.—Fairly long and muscular, especially in boar.
CHEST.—Wide and deep.
SHOULDERS.—Fine, slanting, and well set.
LEGS.—Strong and shapely, with plenty of bone, and set well outside body.
PASTERNS.—Strong and sloping.
FEET.—Strong, and of fair size.
BACK.—Long and straight.
LOIN.—Strong and broad.
TAIL.—Set on high and well tasselled.
SIDES.—Long and deep.
RIBS.—Well sprung and extending well up to flank.
BELLY.—Deep, with straight underline.
FLANK.—Full and well let down.
QUARTERS.—Long, wide, and straight from hip to tail.
HAMS.—Broad and full, well let down to hocks.
COAT.—Abundant, long, straight, and fine.
ACTION.—Firm and free.
Objections: Black hair, very light or ginger hair, curly coat, coarse mane, black spots on skin, slouch or drooping ears, short or turned-up snout, heavy shoulders, wrinkled skin, inbent knees, hollowness at back of shoulders.

Breeding and Class Characteristics.—Swine are judged from the breeding standpoint largely on the same basis as the fat specimens. There are a few points, however, of special significance well worthy of consideration.

Breeding Requisites.—Breeding swine should be judged from the standpoint of the individual and the transmission of desirable breeding attributes to the offspring. Weight for age is important. Hogs are normally mature at least from the show-yard standpoint at two years of age. While extreme weight is important, if consistent with breed and utility qualifications it should not be obtained at the expense of weak bone, impaired constitution and vigor. In judging, therefore, evidences of such treatment should be taken into consideration. Conformity to breed type is important, not

only in character but in general conformation, capacity and maturing qualities. The form should be long, wide, deep and otherwise uniform, thus exhibiting a capacious, reproductive system. Special attention should be paid to breed type, quality and bone formation. The feet and legs should be strong, straight, and the animal should stand well up on the toes. A low back, weak pasterns and small capacity are necessarily objectionable. All evidences of constitution and vitality which largely determine future usefulness should be apparent.

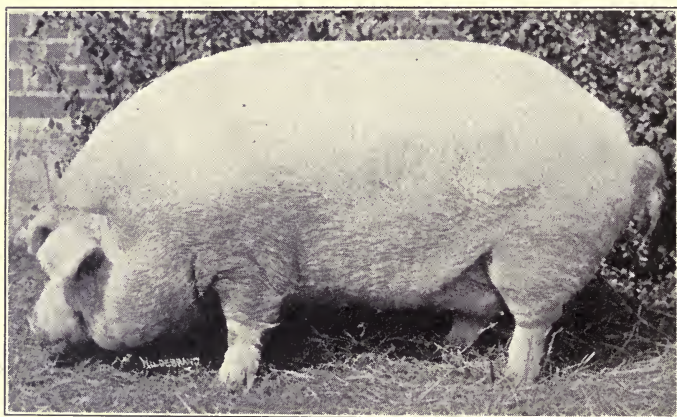


FIG. 148.—A Chester White sow, showing the attributes of a good breeder. Femininity, smoothness, quality and refinement in evidence.

Sex Characteristics.—The sex characteristics should be strongly developed, the boar masculine, vigorous, and alert. The head should be strong and broad, the eyes large and bright, the jaws square and broad and the chest wide and deep with lines conforming to the hindquarters. The head as a whole should exhibit masculine qualities. The neck should be of good length and blend smoothly with the shoulders which should be broad and otherwise strongly developed, although they should be smooth and possess refinement. The shields should be well developed, although not to the extent of causing coarseness of quality.

The sow should possess just the opposite extreme in sex development. Refinement should be in evidence throughout, although not to the extent of lowering constitution and vitality. The head should possess clear, pleasing lines. The neck should be straight, the shoulders more refined than in the boar, the body more capacious and the hindquarters fully developed from every angle. Width and depth of body are important. The chief indications of usefulness in the sow should first be conformity to breed type. Refinement and general quality, constitution, capacity, strong feet and legs, and early maturing qualities should all be in evidence. She should have numerous well-developed teats.

Feeders.—This class of hogs is not important from the open-market standpoint. Because of the prevalence of cholera and other communicable diseases hogs are not shipped to and from market as a usual thing for feeding purposes. Hogs of this class are usually purchased in the country and moved from farm to farm rather than from the open market to the farm. Like other animals, uniformity of breeding, a square, compact form, and quality are desirable. Hogs weighing from 75 to 150 pounds are used largely for feeding purposes, the age and weight selected depending upon feed and market conditions. Barrows constitute the best animals for feeding purposes. In judging, the same factors should be considered as in other types and classes, weight, form, quality, and indications of health and thriftiness being the main factors for consideration.

Young Stock.—Young stock, whether in the pure-bred or grade form, should be judged on a basis of their probable outcome. Indications of thriftiness and desirable ultimate form and finish are the chief attributes to be considered. Weight for age is important. Quality and constitution should be apparent. Further evidences of good qualities are seen in the general refinement and symmetry of form, although this should not be gained at the expense of the other important utility requirements.

CHAPTER XIII.

JUDGING SHEEP.

Purpose.—Sheep are maintained for two distinct purposes: mutton and wool production. In judging them these qualifications should be given close consideration. While both types are in a measure dual purpose in design, they are specifically bred for one or the other of these products. The mutton type, although specifically bred for mutton-producing purposes, is more strictly dual purpose, as the wool obtained from it constitutes a large proportion of the total supply of this product. Although the aim of breeders has been primarily toward perfecting mutton form, this type of sheep has given a good account of itself in wool products. The wool type is not as well balanced as the mutton type in the production of these two products. The quality of wool is unsurpassed, but the form of the animal has a low measure of value in mutton production. The mutton obtained from a wool sheep, therefore, is essentially a by-product.

Method of Use.—The mutton carcass is consumed in a fresh condition with few exceptions. The principal market classes of the fat sheep are the lamb, yearling, wether, and

EXPLANATION OF FIG. 149

- | | | |
|-----------------------|-----------------------|--------------------|
| 1—Mouth. | 11—Shoulder base. | 21—Belly. |
| 2—Nostrils. | 12—Legs. | 22—Sheath. |
| 3—Eyes. | 13—Foreflanks. | 23—Scrotum or cod. |
| 4—Forehead. | 14—Heart girth. | 24—Hindflanks. |
| 5—Poll. | 15—Crops. | 25—Thigh or leg of |
| 6—Ears. | 16, 17—Back and loin. | mutton. |
| 7—Neck. | 17—Loin. | 26—Twist. |
| 8—Throat. | 18—Upper thigh. | 27—Tail or dock. |
| 9—Brisket or breast. | 19—Coupling. | 28—Rump. |
| 10—Shoulder junction. | 20—Sides. | |

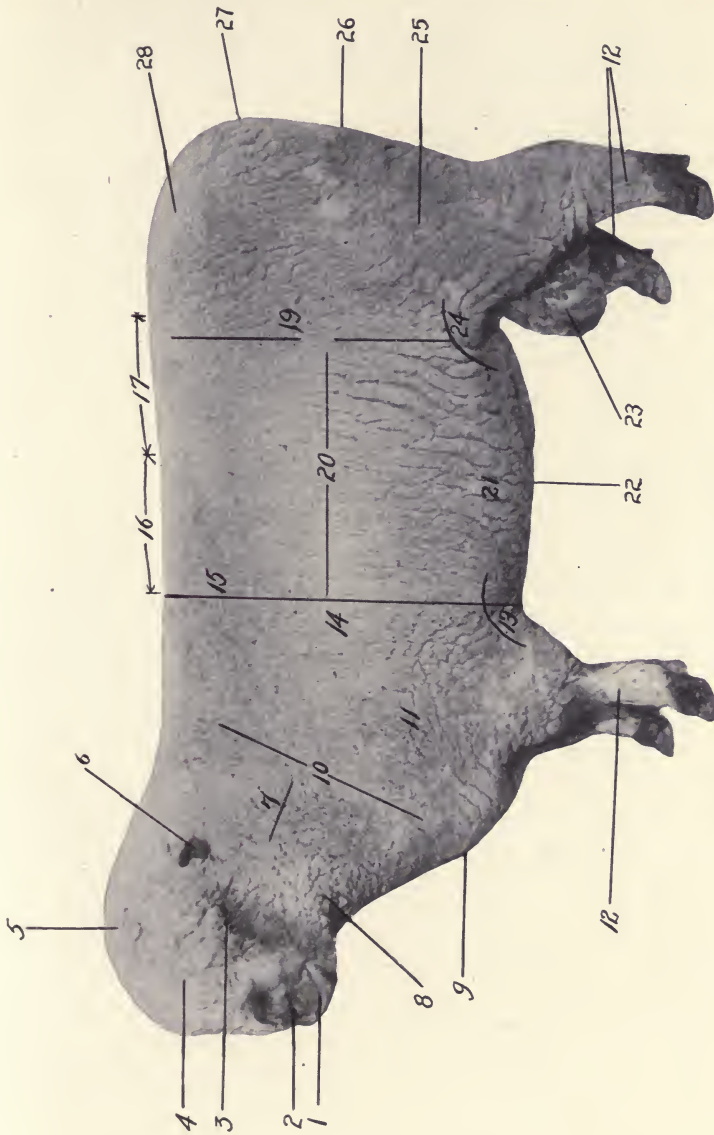


FIG. 149.—Showing location and names of parts of sheep.

ewe. While sheep are placed on the market in other forms, the same as cattle and swine, these classes mentioned constitute the standard finished market products.

The wool obtained from the sheep either once or twice yearly is used in the manufacture of various kinds of woven or felted materials. This depends on the class and grade of the wool, as described later. In judging sheep a careful estimate should therefore be made concerning the value of this product in its various uses.

Determination of Age.—Sheep have eight incisor teeth in the lower jaw. On the upper jaw a rough pad or cushion is provided which serves the purpose of teeth in biting and masticating the feed. The age of sheep under one year is easily determined by the teeth, there being a full set of eight milk or temporary incisors after twenty-eight or thirty days. These temporary teeth are much smaller and whiter than the permanent set. This is clearly evident on the appearance of the first pair of permanent central incisors which are darker in color, larger, broader and longer.

At one year to fifteen months of age the two permanent central incisors appear. These are much larger and stronger than the milk teeth. They can easily be detected by this difference. At eighteen to twenty-four months of age the first intermediate incisors appear and at two and one-half to three years the second intermediates appear. At four years of age, or thereabouts, the fourth or corner pair of incisors displace the temporary teeth, when the sheep has a full mouth, and the age must thereafter be determined by other signs. While it is not frequently necessary to determine the age of sheep after the four-year stage, it is sometimes desirable to do so. The only practical way which this can be done is by observing the general condition of the animal. As the age advances the loin becomes hollow, the nostrils wide and the mouth assumes a characteristic condition known as "broken mouth." When an animal reaches this stage it is beyond its practical period of usefulness except in cases of valuable animals which it is sometimes profitable to maintain by giving special attention to the preparation of the feed.

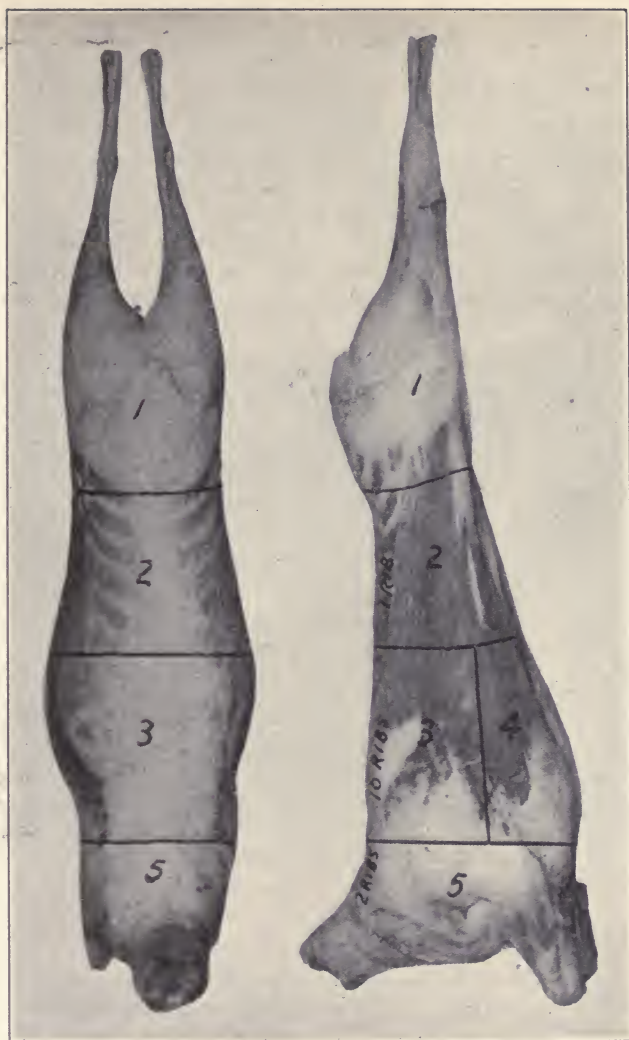


FIG. 150.—Mutton and lamb cuts. (Courtesy of Illinois Agricultural Experiment Station.)

- | | |
|----------------------|---------------|
| 1, 2—Saddle. | 1—Leg. |
| 3, 4, 5—Rack. | 2—Loin. |
| 1, 2, 3—Long saddle. | 3—Short rack. |
| 2, 3, 4, 5—Body. | 2, 3—Back. |
| | 4—Breast. |
| | 5—Chuck. |
| | 4, 5—Stew. |

Examination of Form.—The examination of a sheep when properly made requires a different method of procedure than when judging other animals. The usual method of examination may be employed if the wool is removed. However, most sheep are judged when the wool is intact. This condition requires a careful sense of touch and vivid imagination in order to picture the general form and character of the underlying structure. A sheep with a full coat of wool



FIG. 151.—Determining the development of the neck and over the shoulders.

should always be examined cautiously, as the art of trimming is so perfected that an experienced shepherd can block out most any form desired. This is a common practice in the show ring and experienced judges are always on the alert for such a condition. While an animal need not be examined with the hands to determine beauty and general appearance, it is very essential to do so to determine the merits and imperfections of the underlying structural form. Each movement made by the person examining a sheep should reveal the true condition of form of the part under examina-

tion. Nothing should be passed over until a true visual picture is obtained of the sheep as it would appear with the wool removed. In order to accomplish this end most satisfactorily some systematic method of examination should be employed.

Head and Neck.—The examination should begin at the head, first determining the age as previously indicated. The shape of the head, its length, width and wool covering



FIG. 152.—Determining the fulness through the shoulders and chest.

should be determined, and likewise the expression, size and brightness of the eyes and the set of the ears. While very few breeds of domesticated sheep possess horns, it is well to determine whether there is any indication of them appearing. In pure polled breeds of sheep this is of special significance, as the appearance of horns, abortive or otherwise, would likely indicate impurity in breeding. After completing the examination of the head, the hands should be passed along the neck to determine the form and condition of this part. The blend of the neck into the shoulder should

likewise be determined by continuing the hands toward the shoulder, feeling the fulness of the shoulder vein during the process.

Shoulders.—After completing this part of the shoulder examination the right hand should be placed on top of the shoulders to determine the width, smoothness, and firmness. The hands, one on each side of the animal, should then be passed down the line of the chest or girth which is back of the



FIG. 153.—Determining the development through the lower chest region and in the flanks.

withers and shoulders, this constituting the junction of the forequarters and body proper. The spring and depth of rib, and fulness of chest and foreflank should thus be determined.

Body.—After determining the size and fulness of the heart girth, the right hand should be brought to the top of the shoulders, or slightly back of them, whence the left is passed to the floor of the chest to determine the depth of the animal in this part. The right hand should then be passed along



FIG. 154.—Determining the amount of covering, its distribution and firmness over the back and loin.



FIG. 155.—Determining the width and thickness of the loin.

the back, pressing firmly with outstretched palm on the wool to determine the thickness, firmness, and uniformity of the flesh and condition in this part. After reaching the region of the loin insert the tips of the fingers of each hand in the barrel depression to determine the width of the loin. The spring of rib should be determined by passing the hands along the sides and on either side of the back-bone in such a way that the true form will be revealed. The depth of the body



FIG. 156.—Determining the development through the hindquarters.

in the region of the hindflank should be determined by placing the right hand at the hook point and the left in the region of the flank.

Hindquarters.—The fulness of the hindquarters should be determined by passing the hands one on either side toward the region of the tail-head. The left hand should then be placed at the region of the hook point and the right at the point of the buttock to determine the length of the hindquarters. The size of the leg of mutton is determined by grasping the leg with the left hand on a level with the flank and with the

right at the rear, just below the extremity of the twist. The size and fulness of the leg of mutton should thus be determined by noting whether the hands meet in encircling the part or whether there is an appreciable lack of so doing.

After this examination has been completed the student should be able to picture vividly in his mind an exact model



FIG. 157.—Determining the development of the leg of mutton.

of the animal examined. Each animal in the class should be examined in this way and after balancing the points of vital consideration an estimate should be made of the usefulness for the purpose in question, whether for breeding, show or market.

Fleece.—In judging the fleece it should be opened at three distinct places. It should be examined over the shoulder

about midway of the body and on the outside of the thigh. The wool is finest in the shoulder region, coarsest in the thigh region and medium in the body region. The wooling of the face, legs, and belly should also be examined, as this is very important, especially in breeding classes. While not of such great importance in market animals, close and uniform wooling characteristics are desirable. Close, compact wool is indicative of good mutton qualities. In examining the fleece it should be parted at a natural opening by pressing the inner side of the hands on either side of the place to be opened.¹ This will avoid ruffling the wool, which is very much disliked by shepherds and experienced handlers of sheep. This examination for determining the quality of the fleece should be made at the same time that the animal is being examined to determine the characteristics of form. The length, uniformity, density, crimp, quality, and yolk constitute the main points for examination.

Mutton Type.—The mutton type of sheep is analogous in form to the beef steer or the fat hog. The primary object of production is to produce an edible product. The nearer the form of a sheep approaches the established economic meat-producing type, the more valuable it becomes. The essential considerations, therefore, in mutton production are involved primarily in the same attributes as possessed by other meat-producing animals.

Weight.—The weight varies, depending upon the breed, individuality and condition, the range in mature animals with approved breeding varying from 125 to 400 pounds gross. In market animals the weight is likewise dependent upon breeding, age, and condition. Weight for age is the standard of determining this attribute. The Southdown is the smallest of the mutton breeds, although it is very compact and especially desirable from the standpoint of mutton production. The long-wool breeds which are represented by the Lincolns, Leicesters, and Cotswolds, and the Oxfords from the medium-wool type represent the other extreme.

Conformation.—Most of the domesticated breeds of sheep are of English and Scotch origin. Breeds from this source

¹ See Fig. 162, page 383.

constitute the principal mutton-producing animals. The form should be square, compact, and the animal low set. The body should be long, broad and deep. This should be largely the result of long, well-sprung ribs closely spaced, which gives width, depth, length, and compactness of form.

The head should be broad and full, the neck short and compact, blending smoothly into the shoulder. The shoulder



FIG. 158.—An ideal type of Shropshire wether.

should be broad and smooth over the top, and full and compact over the sides. In the region of the heart the form should be full and the chest deep. There should be no appreciable depression of form in the junction of the fore-quarters with the body proper. The crops and flank should be full and smooth. The back should be straight, carry out well to the tail-head, and it should be parallel with the underline. The ribs should be well sprung, long and full, thus

giving width and depth to the body. The hindquarters should carry out square to the tail-head and buttocks. Any inclination to narrowness in this region is exceptionally objectionable. The leg of mutton constitutes the most valuable part of the carcass and development in this region should, therefore, be given special consideration.

Quality.—Quality in sheep is important, the same as in other animals, although the method of determination is somewhat different from that used in horses, cattle and swine. A measurement of this condition cannot be made as largely by the eye and hand in sheep as in other animals. Quality is usually in evidence about the head, which should be clear in outline and free from any indication of coarseness. Large, drooping ears, a heavy muzzle and a coarse, open fleece are indicative of objectionable quality. The shoulders should be smooth, the joints clean in outline and the bone hard and refined in appearance. A fleece of fine quality, showing density, and fine hair on the face, ears and legs is also indicative of this attribute. The general demeanor should all indicate clean, trim features and outline of form devoid of waste. The skin should present a bright, pink, healthy appearance. A light, pale skin is indicative of general lack of health and thriftiness.

Constitution.—Constitution is of special significance in breeding sheep. If the butcher could eliminate the parts of the sheep indicative of constitution it would be a desirable thing from his standpoint, as all of the readily salable portions are located in the loin and leg of mutton, while the head, neck, and forequarters, the parts which indicate constitution, are comparatively low-priced cuts. In actual practice the breeder and feeder have problems to contend with as well as the butcher. It is therefore necessary to have a broad, strong head, a large muzzle and nostrils, and a broad and deep chest, these being the chief indications of constitutional vigor. Like quality, every part of the animal should portray strong breeding and feeding attributes. These are dependent largely on form and constitution, the former indicating possession of qualities which will enable the sheep to use feed to good advantage, and the latter the con-

tinuance of this process until the period of breeding or feeding is terminated. The general appearance of the animal is quite indicative of strength and vigor. A weakly constituted animal is portrayed by a small, pointed head and muzzle, small, sunken eyes, a narrow, shallow chest, and a dull, lifeless fleece.

Capacity.—The attributes of capacity have been given consideration largely under the description of form or conformation. Length and depth of body are important, as sheep of this description develop rapidly during the normal growing period and thereby attain other important qualifications. Every part of the animal form should show capacity for breeding and feeding. The shallow body is very objectionable, as an animal with such conformation is usually cramped in the digestive capacity and therefore cannot use feed to advantage. Flat ribs, depressed crops, and a narrow loin are especially objectionable. Taken as a whole, the animal should show sufficient length, depth and symmetry of form to make, not only a strong vigorous breeder, but a producer of market animals conforming closely to the standard type desired.

Condition.—Condition is one of the first qualifications noticed by the buyer of animals fattened for market purposes. This is true because it is necessary to mingle muscle and fat to give a carcass a tender, juicy condition. The extent of fitting sheep for market, show or sale depends on conditions. They are usually fitted to the extreme for the show ring as custom has fixed this standard in bringing out all there is in an animal. Sheep should be highly fitted for the market, although fitting should never be overdone, as a soft, blubbery carcass is inferior in quality from the butcher's standpoint. An animal fitted to such a condition never appears to the best advantage in the show ring or on the market.

An overconditioned animal can be determined by noting whether the fat has slipped. When in an overdone condition there is an accumulation of soft fat either in the foreflank, at the tail-head, on the ribs, or around the loin. A sheep in the best condition for the butcher is smooth, firm, and uniform in the fat covering. Any adverse condition is not only

objectionable but unsatisfactory in securing the best market prices. Buyers often test the condition by grasping the animal with one hand over the region of the back, loin and ribs or at the dock. A full, firm, yet springy, even condition of these parts is indicative of proper finish.

Maturity.—Sheep are mature when two years of age, considered from the standpoint of the breeder. In mutton



FIG. 159.—A sheep in field condition.

production, broadly speaking, the age may range from that of the early lamb to the yearling, or to normally mature animals sold or discarded from the breeding herd. In judging market animals, maturity from the purely market standpoint is all that need receive attention, other conditions being equal. In judging breeding animals, however, weight attainments for age are especially important.

Deception from Trimming.—Deception from trimming is best illustrated by examining a sheep with the wool under



FIG. 160.—A sheep trimmed for show, illustrating how form can be improved.
(Photograph by author.)



FIG. 161.—A sheep with wool removed, showing natural contour. (Photograph by author.)

normal field conditions, with the sheep blocked out in a square, compact form, and the same sheep with the wool removed. This will bring out all of the possible points of deception. It will be noted that a very unsymmetrical sheep from the structural standpoint may be made to appear as having an ideal mutton form. Ordinarily the defects covered by blocking and trimming may be located on almost any part of the body exclusive of the legs or other portions where wool does not normally grow.

Fleece Characteristics.¹—The intrinsic value of an animal is determined by the sum total of all of its marketable products. The sheep, unlike most other animals, has an additional commodity in the wool, which not only serves as a protection to the animal, but which enters into commerce as an important product. The value of the wool, therefore, should be carefully determined in connection with the mutton-producing qualities. Although the fleece from an individual animal is not normally a large consideration, measured in dollars and cents, it is oftentimes, under certain conditions, sufficient to cover the annual cost of maintenance. While extreme wool and mutton-producing qualities are antagonistic, it is important to produce as good a quality of wool as consistent with the production of mutton of the best quality.

There are three commonly accepted types of wool, measured in terms of breed production. These are namely: fine wools, medium wools, and long wools. In judging fleece characteristics it is necessary to take into consideration the type of sheep on which the wool is produced. The fine-wool breeds produce wool comparatively short and fine in quality. The crimp is close and the yolk excessive. The medium-wool breeds produce wool of average length and fineness. On the best individuals of these breeds the wool is unusually fine and uniform in distribution. The long-wool breeds produce a long and rather open fleece, lacking in crimp, and the excessive amount of yolk, as found in the fine-wool breeds. In order to judge these characteristics understand-

¹ Special reference, *The Wool Grower and The Wool Trade*, by F. R. Marshall and L. L. Heller, U. S. Department of Agriculture.

ingly, it is necessary to have a clear idea of the kind of wool produced by the various types of sheep. Market considerations are also important, but if the three distinct types of wool are clearly understood and their qualities defined from the breed-production standpoint, the value of the fleece may be judged accurately from the viewpoint of the stockman.



FIG. 162.—Method of examining the character, quality and condition of the fleece. Wool should be parted at a natural opening. Fingers should be kept close together to avoid ruffling wool.

Method of Examination.—In judging fleece characteristics the best results are obtained by following some regular procedure in making the examination. The wool covering of the head should first be noted, after which it should be examined over the shoulder, mid-body, and outer thigh respectively. With the fingers extending straight and held close together, the wool should first be opened over the shoulder. This should be done by parting the wool at a natural opening to avoid ruffling or matting it. The finest wool grows in this region, and a determination of the quality in this part should not be taken as the standard. The wool should next be opened over the mid-body and outer thigh in the same manner. A balance of the fleece characteristics indicated in these parts will furnish an accurate guide to the wooling qualities throughout.



FIG. 163.—Combing and clothing wools. (Hart.)

Before deciding finally on the value of the fleece the sheep should be turned up on the buttocks and an examination made of the wool covering over the belly and on the legs. The quantity, quality, length, density, purity, closeness of crimp, yolk, and soundness should all receive close consideration in the general examination. In making a final summary of the value of a mutton sheep, the mutton and wool qualifications should both be taken into consideration. While the wool is a by-product in the mutton sheep its value should be coördinated with the mutton-producing qualifications. In the fine-wool breeds the reverse condition is true; the wool being of chief consideration.

Throughout the examination the fingers should be extended and held closely together to avoid ruffling the wool. The fingers should never be thrust in the folds of the wool as it usually leaves an impression which it is difficult to overcome, especially in sheep fitted for show. As in judging the form and condition of an animal the first examination should reveal the true condition and value of the fleece.

Quality.—The quality of a fleece is determined by the fineness of the fiber, the closeness of the crimp, and the softness or pliability of the staple.

The fineness has reference to the size of the fiber. This is very closely associated with the crimp, which should be close and uniform in contradistinction to the open-spiralled fleece of the long-wool breeds. A diseased or ill-fed sheep usually has a very objectionable fleece because of weakness of fiber and irregularity in the crimp. In a healthy, well-fed sheep the crimp is uniform, while otherwise it is long and wavy. An irregular growth is undesirable because of the lack of uniform fineness and strength of fiber. If a sheep remains in an unhealthy condition for any great length of time, the wool retains a weak place which usually reduces the value very materially. Wool with a perceptible weakness goes in a class for shorter stapled wools.

In making an examination of the quality of a fleece, the fineness and closeness of crimp should be carefully determined as well as the condition of the fiber. The softness or pliability is readily determined by pressing on the fleece

with the palm of the hand, fingers extended. If there is a firm yet pliable condition the wool possesses the requisite of softness. If there is a dry, harsh touch, the wool is lacking in yolk or oil to give it the necessary pliability to retain a normal, healthy condition. When the secretion is ample, the scales on the fibers retain their close-fitting position, while if the secretion is not sufficient the scales stand out and give the harsh, grating touch characteristic of a dry,



FIG. 164.—Frowsy wool. (Hart.)

unhealthy or cotted fleece. A sheep which is well fed and otherwise properly managed usually exhibits it in the condition of the fleece as well as the body.

Quantity.—The quantity of the fleece is indicated by the length, density, and uniformity of staple. The length of staple varies, depending on the breed and the season of the year. The fleece should be judged with these three factors in mind. The long or coarse wools include those produced by the Lincoln, Leicester, and Cotswold. The medium

wools include those from the Southdown, Shropshire, Hampshire, Oxford, Suffolk, Cheviot, and Dorset, and the fine or short wools those produced by the Rambouillet, American and Delaine Merino. Short-staple wools are used in the manufacture of woolens and felts, while long-staple wools are adapted to producing worsted goods made from strong, fine yarn.

Density refers to the closeness or compactness of the fibers. If the fibers are not close it depreciates the value of the fleece greatly, not only on account of the amount of wool, but because of the depreciation in quality. An open fleece is also very objectionable because of the lack of protection afforded the sheep. An open fleece is often influential in causing an animal to become diseased through continuous exposure to storms and it is difficult to keep such a fleece free from foreign matter.

Uniformity of covering influences greatly the wool clip. Sheep which are bare on the head, belly and legs are very undesirable, unless it is with breeds which are not naturally heavily woolled over these parts. Not only are these regions important but the uniformity of covering as well over the back, shoulders, sides, and thighs. An open, spiral condition about the thighs or elsewhere is very objectionable, although it frequently occurs.

Purity.—An examination of the fleece should reveal a clean, pure condition. The skin should be of a healthy pink color and from it the wool should grow evenly and without any indication of kemp or dead fibers. The original sheep was covered with a harsh, hair-like covering beneath which was a soft-wool fiber. Domestication and improvement by man has eliminated the coarse outer covering and in its place a uniform covering of wool has been bred by proper selection. Inclination to revert to the original condition should be discovered, as dead, kempy wool is very objectionable because of its undesirable qualities in the manufacture of fabrics. Kemp will not absorb dyes and wherever these fibers appear in the cloth they reduce the value materially because of the discoloration and the harsh appearance in the product.

Other than these dead fibers of wool, there should be



FIG. 165.—Braid wool. (Hart.)

freedom from foreign material of any kind. While allowance should be made for judging sheep in field condition, proper



FIG. 166.—Healthy sheep and sound, lustrous wool are best produced under natural conditions.

care will avert a large part of the dirt and filth often found in the fleeces upon examination. The introduction of any

preparation to increase the oil or yolk content or to improve the texture or general appearance of the fleece is very objectionable.

Lustre.—The lustre of a fleece refers to the character or glistening appearance of the fiber. Lustrous wools have a glistening or brilliant appearance. While this would seem to make wool harsh it does not cause such a condition. Dull wools are dead or lifeless in appearance and on handling there is a very decided harshness characteristic of dead or dry hair. When held to the light there is no tendency to glisten. Wools of this character are very much less valuable than those of a lofty, fresh lustrous appearance.

Yolk.—Yolk is an oil secreted by oil glands. This exudes on the fibers of wool and out to the extreme outer surface where it collects and in some breeds forms a hard crust on the coat. This condition is especially characteristic of the fine-wool breeds which have an unusual amount of this oil in the fleece. Sheep in healthy condition should show a uniform distribution of yolk throughout the fleece. This condition in sheep may be compared to the much-coveted oily condition of the skin and hair of the Guernsey cow. Only enough yolk should be exuded to keep the fleece in a soft, healthy condition. Any in excess of this amount is of no use whatever, as the manufacturer uses only the scoured wool. An uneven distribution of yolk indicates unthriftiness. Layers or flakes of yolk throughout the fleece show that the glands secreting this fluid are out of condition. This is an index to the regularity of the vital organs of the animal. When such a condition is present the feeding and management of the animal should be investigated, as invariably it is the result of improper care or a generally unhealthy condition.

Soundness.—Sound wool is of great importance to the manufacturer because of the increased value given to the finished product. Unsound wools would of necessity make unsound cloth, because of the irregularity in the strength of the yarn, whether in woolen or worsted goods. There should be a uniform condition of strength and crimp throughout the fleece.

A diseased condition of the animal may cause dead or weak places in the fleece. The location of the unsoundness depends on the stage of development of the fleece when the disease appears. The weakness may be in the top, the bottom or middle of the wool. This leads to the expression of wools with weak tops, weak bottoms or weak middles. In classifying wools, what would otherwise be a combing wool if sound would enter into the class for clothing wools because of the shortness of fiber made necessary through dividing the fiber at the location of the weakness.



FIG. 167.—Tender wool showing break. (Hart.)

Market Classification of Wool.—Market wool is classified into clothing, delaine and combing staple. This classification is based on the length, strength and fineness of fiber, shrinkage or condition, color and character. Each of the domestic staples is divided into various commercial grades.

Clothing Wool.—Clothing wool is used for making the highest grades of woollen cloth. It is a fine, short staple averaging about two inches in length. Clothing wools are

graded on their quality into Picklock, XXX, XX, X, No. 1 or one-half blood, No. 2 or three-eighths blood, and No. 3 or quarter blood. Picklock and XXX are rare.

Delaine Wool.—Delaine wool is about three inches in length, sound in staple and is used in manufacturing delaine cloth. The wool is further graded into fine, medium, and low. It is also classed under combing wools.

Combing Wool.—Combing wool averages three or more inches in length. It should be strong enough to withstand the combing process. Such wool is graded into half-blood, three-eighths blood, quarter blood, low-quarter blood, and braid.

Variation in Fleece.—Each fleece contains a number of distinct grades of wool; for instance, the finest wool of the fleece is found over the heart or along the shoulders, the next finest along the sides. The back of the fleece which has been most exposed to the rays of the sun and weather is usually dry and harsh. The neck, legs, and lower parts of the fleece yield shorter wool, while the lowest grade is found on the hindquarters.

Before any of the wool is actually worked in the mills it is sorted according to the grade and thence used for the various purposes for which it is adapted. This emphasizes the necessity of having the fleece uniform in quality and condition throughout. While this is difficult to find in the average sheep, yet the nearer this condition can be approached the higher the wool will grade and the more valuable it will be on the market. Kemp and foreign matter damage the wool materially and for this reason care should be exercised in detecting the condition.

SCORE CARD FOR MUTTON SHEEP.

GENERAL APPEARANCE—40 Points.	Perfect score.
<i>Weight:</i> score according to age	6
<i>Form:</i> long, level, deep, broad, low set, stylish	10
<i>Quality:</i> clean bone, silky hair, fine skin, light in offal, yielding large percentage of meat	10
<i>Condition:</i> deep, even covering of firm flesh especially in region of valuable cuts. Points indicating condition or ripeness are thick dock, back thickly covered with flesh, thick neck, full purse, full, low flank, plump breast	10
<i>Temperament:</i> lymphatic, inclined to fatten	4
Carried forward	40

	Perfect score.
Brought forward	40
HEAD AND NECK—6 Points.	
<i>Muzzle:</i> fine, mouth large, lips thin, nostrils large	1
<i>Eyes:</i> large, clear, placid	1
<i>Face:</i> short, clean-cut features	1
<i>Forehead:</i> broad, full	1
<i>Ears:</i> fine, erect	1
<i>Neck:</i> thick, short, throat free from folds	1
FOREQUARTERS—4 Points.	
<i>Shoulder Vein:</i> full	1
<i>Shoulder:</i> covered with flesh, compact on top, smooth	1
<i>Brisket:</i> projecting forward, breast wide	1
<i>Legs:</i> straight, short, wide apart, strong; forearm full, shank smooth and fine	1
BODY—26 Points.	
<i>Chest:</i> wide, deep, full, indicating constitution	6
<i>Back:</i> broad, straight, long, wide, thickly fleshed, ribs arched	10
<i>Loin:</i> thick, broad, long	10
HINDQUARTERS—12 Points.	
<i>Hips:</i> far apart, level, smooth	2
<i>Rump:</i> long, level, wide to tail-head	3
<i>Thighs:</i> full, deep, wide	3
<i>Twist:</i> plump, deep	3
<i>Legs:</i> straight, short, strong; shank smooth, fine	1
FLEECE—12 Points.	
<i>Kind:</i> domestic, territory, carpet or blanket.	
<i>Class:</i> clothing, delaine or combing.	
<i>Grade:</i> fine, medium, or coarse.	
<i>Quantity:</i> long, dense, even distribution	4
<i>Quality:</i> fine, pure; crimp close, regular, even	4
<i>Condition:</i> bright, sound, clean, soft, light	4
Total	100

Breed Characteristics.—Sheep are classified by types and breeds as follows, the classification being based on mutton- and wool-producing qualifications:

Mutton.—Long wool: Lincoln, Leicester, Cotswold and Romney. Medium wool: Shropshire, Southdown, Hampshire, Oxford, Cheviot, Dorset, Suffolk, and Tunis.

Wool.—Fine wool: American Merino, Delaine Merino, and Rambouillet.

They are further described in detail as follows on a basis of type and breed characteristics:

Lincoln.—The Lincoln breed of sheep originated in Lincolnshire, England. It is among the largest breeds produced. The weight of the rams varies from 250 to 300

pounds, the ewes ranging somewhat lighter in weight. The color is pure white, the wool extending up to the poll and throttle with a characteristic tuft on the forehead. The wool extends down to the knees and hocks. The head and legs are covered with white hair. The fleece is long, moderately fine, considering type, and hangs in spirals or locks. In general appearance the breed is massive, some specimens



FIG. 168.—Lincoln ram.

reaching a weight of 400 pounds. The back is broad, level and the flesh reasonably firm. The breed is polled, broad between the eyes and inclined to be Roman-nosed. It does not rank high as a mutton producer, as the quality of mutton is not extra and there is an excessive amount of waste in the dressed carcass. The disposition is docile, although the breed is not the best suited to general production. The fleece attains an extraordinary length. It should not be less than eight inches in length for one year's

growth. In quality it is somewhat better than that of the Leicester. The breed ranks fair in breeding qualities. For average conditions it is too large and does not possess enough quality either in the mutton or wool.

STANDARD OF EXCELLENCE AND SCALE OF POINTS FOR LINCOLN SHEEP.

	Points.
CONSTITUTION.—Body deep, back wide and straight; wide and full in the thigh; bright, large eyes; skin soft and of a pink color	25
SIZE.—Matured rams not less than 250 pounds when in good condition. Matured ewes not less than 200 pounds. . . .	10
APPEARANCE.—Good carriage and symmetry of form	10
BODY.—Well proportioned, good bone and length; broad hind-quarters; legs standing well apart; breast wide and deep . . .	15
HEAD.—Should be covered with wool to the ears; tuft on forehead; eyes expressive; ears fair length; dotted or mottled in color . .	10
NECK.—Medium length; good muscle; well set on body	5
LEGS.—Broad and set well apart; good shape; color white, but some black spots do not disqualify; wooled to the knees . . .	10
FLEECE.—Of even length and quality over body; not less than eight inches long for one year's growth	10
QUALITY OF WOOL.—Rather fine, long wool; strong, lustrous fiber; no tendency to cot	5
Total	100

Leicester.—The Leicester ranks as one of the large breeds, although it is the smallest one belonging to the long-wool type. The rams average in weight from 200 to 250 pounds, the ewes ranging 50 to 75 pounds lighter. The form is square, although inclined to be somewhat upstanding. There are two types of the breed, the Bakewell and Border Leicester, however, the standard of excellence makes no distinction in them. The Bakewell type is white in color, large, long wooled, and is somewhat long in the leg. The head of the English Leicester has a tuft of wool and the face has a bluish tint, small black spots often appearing on the head and ears. The ears are erect, thin, and well poised. The neck is short, the body wide in the rib, although the quarters are inclined to be rounded and narrow. The breast is prominent, thus giving an unusually square appearance. The breed is polled and somewhat inclined to be Roman-nosed. The quality of the fleece is good for a long-

wooled breed. It is medium in length and hangs in spiral locks over the body. The fleece does not extend beyond the ears usually or below the knees or hocks. The two types of Leicesters are distinguished by the white face and freedom from wool thereon in the Border Leicester, and the bluish-white face and tuft of wool on the head of the English Leicester. The breed is unusually refined and possesses a docile disposition. It is more popular in Canada than in the United States.



FIG. 169.—Leicester ram.

STANDARD OF EXCELLENCE AND SCALE OF POINTS FOR LEICESTER SHEEP.

	Points.
HEAD.—Long, moderately small, tapering toward the muzzle; white and well covered with hair; lips and nostrils black . . .	6
NOSE.—Somewhat narrow, almost straight in ewes, and slightly Roman in rams . . .	2
FACE.—Having a wedge-shaped appearance, well covered with fine white hairs . . .	2
Carried forward . . .	10

	Points.
Brought forward	10
EARS.—Thin, rather long, mobile and directed backward; a black speck on face and ears not uncommon	2
EYES.—Large and prominent	4
NECK.—Strong and moderately short, level with the back and broad at the base where it leaves the chest, gradually tapering toward the head, being fine where head and neck join; neck straight from chest, showing a straight line from rump to poll	6
BREAST.—Deep, broad and full	8
SHOULDERS.—Upright, wide across the top, giving good thickness through the heart	6
CHEST.—Well filled behind the shoulder, with large girth	6
BACK.—Broad and well fleshed, ribs well sprung, loins wide, hips level, quarters straight and long	12
BARREL.—Round, well-ribbed home, straight lines above and below	10
LEGS.—Of moderate length, fairly large and wide apart, with strong, flat bone, covered with white hair; brown hair or spots objectionable	6
FLESH.—Firm, springy pelt; pink skin	8
FLEECE.—Fine, uniform and sound in staple, curly, with good, bright lustre and no dark hairs or kemp, belly well covered	10
CARCASS.—Rectangular, legs well set on, hocks straight, pasterns good, with neat feet, good general appearance	12
Total	100

Cotswold.—The Cotswold breed, a native of the Cotswold Hills, England, is of remote lineage. The breed ranks with the Lincoln in size, rams weighing from 250 to 275 pounds or more in moderate flesh. This is an average mutton breed, the quality being somewhat inferior and the percentage of fat and offal too great. The breed is hornless, and the face usually white, although sometimes spotted with gray or brown. The head is broad between the muzzle and eyes, while the nose is somewhat Roman. The breed is alert, having considerable expression, and often a dignified appearance. The back is broad, although the body is at times shallow, making the animal appear leggy. The legs have the same color markings as the head. The breed ranks only fair in mutton quality, considering type, the coarse texture of mutton and external fat being criticisms against the breed. The fleece is similar to the Lincoln, hanging in locks or ringlets over the body. The breed is characterized by a heavy forelock of wool which hangs over the face and eyes. The fleece often

has extreme length, attaining a length of ten inches or more. Although considerable improvement has been effected in the weight, symmetry, maturing qualities, and fleece characteristics the demand for a smaller, earlier maturing breed of mutton sheep has mitigated against the general introduction of the Cotswold.



FIG. 170.—Cotswold ewe.

STANDARD OF EXCELLENCE AND SCALE OF POINTS FOR COTSWOLD
RAM.

	Points.
HEAD.—Not too fine, moderately small, and broad between the eyes and nostrils, but without a short, thick appearance, and in young animals well covered on crown with long, lustrous wool	8
FACE.—Either white or slightly mixed with gray, or white dappled with brown	4
NOSTRILS.—Wide and expanded, nose dark	1
EYES.—Prominent, but mild looking	2
EARS.—Broad, long, moderately thin, and covered with short hair.	4
Carried forward	19

	Points.
Brought forward	19
COLLAR.—Full from breast and shoulders, tapering gradually all the way to where the neck and head join. The neck should be short, thick and strong, indicating constitutional vigor, and free from coarse and loose skin	6
SHOULDERS.—Broad and full, and at the same time join so gradually to the collar forward and chine backward as not to leave the least hollow in either place	8
FORELEGS.—The mutton on the arm or forethigh should come quite to the knee. Leg upright with heavy bone, being clear from superfluous skin, with wool to fetlock, and may be mixed with gray	4
BREAST.—Broad and well forward, keeping the legs apart, girth or chest, full and deep	10
FOREFLANK.—Quite full, not showing hollow behind the shoulder	5
BACK AND LOIN.—Broad, flat and straight, from which the ribs must spring with a fine, circular arch	12
BELLY.—Straight on underline	3
QUARTERS.—Long and full, with mutton quite down to the hock	8
HOCK.—Should stand neither in or out	2
TWIST.—Or junction inside the thighs, deep, wide and full, which, with a broad breast, will keep the legs open and upright	5
FLEECE.—The whole body should be covered with long, lustrous wool	18
Total	100

Romney.—The Romney breed is a native of Kent county, England. The breed is comparatively new and untried in America. The head and legs are white, the wool extending down to the knees and hocks and up to the extremity of the jaws, reaching over the poll and terminating in a tuft on the forehead. It is fair in mutton production, the back being broad and the body very compact in form. The early type of the breed was small, flat-ribbed and late in maturing qualities. The modern type is more refined and compact and has better fattening propensities. The back is broad, long and the quarters are well developed. The breed is hornless. It is claimed it is free from foot-rot, but this may be somewhat exaggerated. The breed is adapted to low-lying lands, although it is not likely that it is entirely immune from this disease, peculiar to sheep when maintained on low lands. The quality of the breed is fair in mutton and wool. There is some inclination to coarseness of bone and open fleece characteristics, an average fleece weighing

about eight pounds. The breed has considerable merit and has met with favor in Australia and some of the British colonies. It is not important in this country, although it is well worthy of consideration both from a utility and authoritative standpoint.



FIG. 171.—Romney ram. (Courtesy of Messrs. Hickman and Kent, Scruby, England.)

Medium Wool.—Shropshire.—The Shropshire is one of the most widely distributed breeds of sheep in existence. While there is some variation in type, the breed possesses certain well-defined characteristics. The quality of the Shropshire is excellent, and when matured for market the lambs and mature sheep make a good quality of lamb and mutton. The quality is exhibited very strikingly in the general trimness of the animal. The bone is medium in size and possesses good quality.

The size of the rams ranges from 175 to 225 pounds, and the ewes from 125 to 175 pounds. The breed possesses good constitution and exhibits considerable hardiness, although

there are other breeds which surpass it. The most striking characteristics are the head which is broad, deep and almost completely covered with wool. The eyes and the extremity of the muzzle are the only parts which are not covered with wool, although in some cases it is so dense that the eyesight is almost completely obstructed. The fleece is medium in length, compact, and should extend from the muzzle extremity well down to the hoofs on characteristic animals of the breed. The muzzle is usually dark brown or black and also that part of the legs which may not be covered



FIG. 172.—Shropshire ram.

with wool. The Shropshire possesses most striking breed characteristics. The breed is hornless, the ears small, short, and should be covered with short, fine wool. Large ears are objectionable. The Shropshire is a strong-backed breed, and usually has good depth of body. The brisket is usually full and square. The fleece covers the entire body uniformly and exhibits unusual quality. The breed is early maturing, the lambs growing and fattening uniformly at an early age. The mutton and wool combination, size, quality, and maturity are popular with the numerous advocates of the breed.

STANDARD OF EXCELLENCE AND SCALE OF POINTS FOR SHROPSHIRE SHEEP.

	Points.
GENERAL APPEARANCE.—Attractive, indicating breeding and quality, with stylish carriage, and a symmetrical form covered with a dense fleece	25
CONSTITUTION.—Robust, as indicated by width and depth of chest, strength and formation of neck, and by bold, active movement	10
SIZE.—In breeding condition when fully matured, rams should weigh not less than 180 to 225 pounds, and ewes not less than 125 to 170 pounds	10
FLEECE AND SKIN.—Fleece of good length, dense, elastic to touch, medium fine, free from black fibre, slightly crimped, with evenness of texture throughout; scrotum of rams well covered with wool. Skin light cherry color, free from dark spots	15
BODY.—Well proportioned, with shoulders well placed, fitting smoothly upon the chest, which should be deep and wide, broad and straight back, thick loins well covered with firm flesh; hindquarters well finished; twist deep and full	20
HEAD AND NECK.—Head short, broad between the ears and eyes, bold and masculine in rams, without horns, well covered with wool, ears short and erect, eyes bright, color of face and ears dark brown. Neck of medium length, strong and muscular (especially in rams), symmetrically joined to head and shoulders. Rams with horns or stubs are disqualified as heads of flocks	15
LEGS.—Well set apart, broad, short, straight, color dark brown, and well woolled; pastern strong and upright	5
Total	100

Hampshire.—The Hampshire breed ranks rather large in size and like the Shropshire, has certain very marked breed characteristics. The face is dark brown in color, broad, long, and the nose very strikingly Roman in appearance. The legs are also dark brown or black in appearance. The fleece is medium in length, reasonably dense, but not as good in quality as in the Shropshire or Southdown, lacking in length, density, fineness and an even distribution.

In general appearance, the Hampshire is a large, long, broad, and deep animal. It is second to the Oxford in size. The legs are of medium length, thus giving the animal a fairly low-set appearance. There is some inclination to narrowness and shallowness in the heart girth. The weight of the rams ranges from 200 to 250 pounds and the ewes

from 175 to 200 pounds in sheep of standard weight. The quality is fair, there being some inclination to coarseness. The breed is hornless, and ranks well for crossing on other breeds for the production of mutton. One of the principal points in favor of the breed is the large size to which it attains early in life, thus giving size and maturity to the lambs at a much younger age than otherwise. Taken as a



FIG. 173.—Hampshire ram.

whole, the Hampshire is not as compact or as good in quality either in mutton or fleece as the Shropshire or Southdown. However it ranks well as a mutton sheep, having a reasonably wide distribution in England, America and other countries.

STANDARD OF EXCELLENCE AND SCALE OF POINTS FOR
HAMPSHIRE SHEEP.

Detailed Description.

HEAD AND LEGS:

Head: moderately large, but not coarse; well covered with wool on forehead and cheeks.

Nostrils: wide.

Color: (head and legs) dark brown or black

Eyes: prominent and lustrous.

Ears: moderately long and thin, and dark brown or black color.

Legs: well under outside of body, straight, with good size of bone, black.

NECK, SHOULDERS AND CHEST:

Neck: A regular taper from shoulders to head, without any hollow in front of shoulders, set high up on body.

Shoulders: sloping, full, and not higher than the line of back and neck.

Chest: deep and full in the heart place, with breast prominent and full.

BODY:

Back: straight, with full spring of rib.

Loin: wide and straight, without depression in front of hips.

Quarters: long from hips to rump, without sloping, and deep in thigh. Broad in hips and rump, with full hams. Inside of thigh full.

SCALE OF POINTS:

	Points
<i>Head:</i> size and shape, 5; ears and eyes, 3; color, 5; legs and feet, 2	15
<i>Neck:</i> shoulders and breast—neck, 5; shoulders, 10; chest and breast, 15	30
<i>Body:</i> back and loins, 15; rib, 5	20
<i>Quarters:</i> length, 10; width, 10; twist, 5	25
<i>Wool:</i> forehead and cheeks, 2; belly, well covered, 3; quality, 5	10
Total	100

Southdown.—The Southdown is the smallest of the middle wool breeds of sheep. The weight of rams ranges from 150 to 175 pounds and ewes from 130 to 140 pounds. From the standpoint of form and quality, the breed is almost ideal. The animal is straight in its lines, squarely built, and compact throughout. The latter attribute is one of the most desirable qualities of the breed. The bone is fine, the fat not excessive and the flesh of the finest flavor. The color of the face and legs is of a rich grayish brown. The fleece extends over the poll and forehead, up to the eyes and to the extremity of the lower jaws. On the legs it extends well below the knees and hocks. The fleece is of medium length, fine in quality, very dense and has a close crimp for

a medium wool breed. The fleece is short, however, and lacking in yield.

The breed is hornless, the head broad, the ears rather small and neatly set, the eyes bright, the muzzle large and the nostrils open. The neck is short and compact, the shoulders smooth, and the crops full. The body of the animal is very nearly ideal from the mutton standpoint, it having the desired length, width, squareness and fulness of body, back



FIG. 174.—Southdown ram.

and loin. The leg of mutton is well developed, having quality and compactness. The constitution is quite well developed as indicated by the rather large muzzle and nostril and the broad, deep chest. The legs are of medium length, the bone of medium size and fine quality. The conformation of the Southdown meets the demands of the butcher in compactness and quality. The breed lacks size, however, and may be criticised somewhat from this standpoint, as well as having a light fleece.

STANDARD OF EXCELLENCE AND SCALE OF POINTS FOR SOUTH-DOWN SHEEP.

	Points.
HEAD.—Medium in size and hornless, fine, carried well up, the forehead or face well covered with wool, especially between the ears and on the cheeks, and in the ewe slightly dished . . .	5
LIPS AND UNDER JAW.—Fine and thin . . .	1
EARS.—Rather small, tolerably wide apart, covered with fine hair, and carried with a lively back-and-forth movement . . .	2
EYES.—Full and bright . . .	3
FACE.—A uniform tint of brown, or gray, or mouse color . . .	3
NECK.—Short, fine at the head, but nicely tapering, and broad and straight on top at the shoulders . . .	4
SHOULDERS.—Broad and full, smoothly joining the neck with the back . . .	5
BREAST.—Wide, deep and projecting well forward, the forelegs standing wide apart . . .	5
BACK.—Back and loin broad and straight from shoulders to rump . . .	7
RIBS.—Well arched, extending far backward, the last projecting more than the others . . .	6
RUMP.—Broad, square and full, with tail well set up . . .	6
HIPS.—Wide, with little space between them and last ribs . . .	6
THIGHS.—Full and well let down in twist, the legs standing well apart . . .	6
LIMBS.—Short and fine in bone, and in color to agree with the face . . .	3
FORELEGS.—Well woolled and carrying mutton to the knees, but free from meat below . . .	2
HINDLEGS.—Well filled with mutton and woolled to the hocks, neat and clean below . . .	2
BELLY.—Straight and covered with wool, the flank extending so as to form a line parallel with the back or top line . . .	5
FLEECE.—Compact, the whole body well covered with moderately long and close wool, white in color, carrying some yolk . . .	12
FORM.—Throughout smooth and symmetrical, with no coarseness in any part . . .	9
GENERAL APPEARANCE.—Spirited and attractive, with a determined look, a proud and firm step, indicating constitutional vigor and thorough breeding . . .	8
Total	100

Oxford.—The Oxford, which is a derivative of a Hampshire-Cotswold cross, is the largest of the medium wool breeds of sheep. In some respects it resembles the Shropshire and Hampshire breeds, although it is larger in size. The breed is somewhat variable in this respect, standard rams of the breed weighing from 250 to 350 pounds and ewes from 180 to 275. The constitution of the Oxford is well developed, as indicated by the broad, deep chest which

extends well forward, thus giving a large chest capacity. The frame is large, which provides for the extraordinary size to which the breed develops. The animal is long in body, deep, broad, and square over the back.

The head is large and somewhat inclined to be plain, although not to a serious extent. The forehead is broad, the jaws deep and the muzzle large and characterized by



FIG. 175.—Oxford ram.

open nostrils. The neck is full, broad, and compact, the shoulders smoothly developed and the chest girth square and full. The leg of mutton is large, although it does not possess the quality of some of the smaller breeds. The fleece covers the entire animal, with the exception of the face, cheeks, muzzle extremity, and frequently the legs from the knees and hocks down. The face and legs are uniformly brown in color. The fleece of this breed is rather coarse and open. It is ordinarily classed as the longest and coarsest fleece

grown by the Down breeds. The skin of the Oxford is not as desirable as it should be, there being some tendency to a bluish tinge which is an objectionable feature in any breed. The Oxford is prolific and meets with most favor on level or rolling lands.

STANDARD OF EXCELLENCE AND SCALE OF POINTS FOR OXFORD
DOWN SHEEP.

	Points.
BREED TYPE—30 Points.	
<i>Form:</i> Of a good general appearance, made by a well-balanced conformation, free from coarseness in any part, and showing good style both at rest and in motion	15
<i>Head:</i> Of moderate length and width between the ears and between the eyes, and well covered with wool over poll and down to the eyes. Color of face an even dark gray or brown, either with or without gray spot on tip of nose	6
<i>Rams:</i> When fully matured and in good condition rams } should weigh 250 to 350 pounds.	5
<i>Ewes:</i> When fully matured and in good condition ewes } should weigh 180 to 275 pounds	
<i>Ears:</i> Medium size, not too thick and of an even brown or dark gray color	2
<i>Legs:</i> Short, strong in bone, flat and of even dark gray or brown color, placed squarely under the body and well apart	2
CONSTITUTION—25 Points.	
<i>Heart Girth:</i> Large and wide and full in the chest	10
<i>Movement:</i> Must be bold and vigorous	5
<i>Eyes:</i> Bold, prominent and bright	4
<i>Skin:</i> Bright pink in color	3
<i>Neck:</i> Strong and muscular in rams and well set on in both sexes	3
MUTTON FORM AND QUALITY—30 Points.	
<i>Shoulders, Back, Loin, and Rump:</i> Wide and straight on top from base of neck to tail	15
<i>Shoulders and Thighs:</i> Full and well meated both inside and outside	5
<i>Flanks:</i> Well filled and strong so as to make the lower lines of the body as straight as possible, and side lines straight or rather full	4
<i>Carcass:</i> Evenly covered with good, well-marbled meat	6
WOOL—15 Points.	
<i>Fleece:</i> Of moderate length, close and of even quality, covering the whole carcass, well and free from black patches upon the body, neck or head	15
Total	100

Cheviot.—The Cheviot is a very characteristic breed. Its stylish form and sprightly movements are noticeable by any

casual observer. The breed is medium in size, rams weighing 200 pounds on the average, and ewes from 140 to 150 pounds. The head is usually hornless and devoid of wool, the latter extending to the base of the ears and the throttle. The legs are bare of wool below the knees and hocks, the head and legs usually having a white color. The fleece is more than average in length, and is very uniformly distributed over the body. It is not as dense as in other medium wool breeds, the openness of fleece being objectionable.



FIG. 176.—Cheviot ram and ewe.

The head of the Cheviot is rather broad, the muzzle large and the nose slightly Roman. The ears are free from wool, of medium size, rather pointed and slightly erect. The neck is short, broad, and deep and has a rather characteristic crest formed partly by the conformation of the neck and shoulder and otherwise by the fleece. The body of the Cheviot is deep, the legs rather short, thus giving the animal a characteristic low-set appearance. The shoulders and body are not as broad as in the Shropshire and usually not as smooth and compact. The ribs extend well down, thus giving a charac-

teristic depth of body. Mutton from this breed ranks high, because of superior quality and minimum of waste fat. The constitution is quite remarkably developed, as indicated by the depth of body and the forward extension of the brisket. The breed, as a whole, is rarely surpassed in rustling qualities. In some cases the rams have horns, although this is rare. Characteristic animals of this breed have a very alert, stylish, and distinctive appearance. The principal objections to them are lack of compactness and thin, light, open fleeces.

STANDARD OF EXCELLENCE AND SCALE OF POINTS FOR CHEVIOT SHEEP.

	Points.
GENERAL CONFORMATION AND QUALITY.—Deep and full breast and large through chest. Back wide and straight, with well-sprung, deep ribs, legs well placed and leg of mutton full and thick. Body well fleshed, skin pink with no blue or dark coloring, fleece compact and medium fine, bone strong and fine, general appearance graceful, symmetrical, active	20
SIZE.—In good flesh when fully matured a twenty-four-months-old ram should weigh not less than 225 pounds, and a ewe not less than 150 pounds	10
HEAD.—Should be medium short and broad with ample breadth between the eyes. Ears should be of medium length and usually erect when at repose. Head covered with clear white hairs, extending from nostrils to back of poll. Ridge of head from between eyes to nostrils straight or slightly arched with females and more strongly arched or Roman with rams. Color of tip of nose black	15
BODY.—Well proportioned, having notable depth, with thickness on top and at flanks. Loins should be very broad and thick, shoulders should set well back and be smoothly covered, and crops be full and well arched. The rump should be long, broad and level	20
LEGS.—Should be short, well set apart and be covered with clean white hair, with no wool below hocks and knees. The hind legs should be flat and deep below hocks. Pasterns should be strong and not show weakness, supporting the body well . . .	10
FEET.—Symmetrical, squarely placed when in repose and hoofs black in color	5
FLEECE.—Should cover the body completely to behind the poll and ears and down to knees and hocks. Under part of the body should be well covered. In mature animals should be not less than three inches long for annual growth and be compact and of medium wool class. Rams should shear at least 12 pounds and ewes 8 when in mature form to be desirable representatives of the breed	20
Total	100

OBJECTIONS.—*Scurs* on the head, black spots on the head, flesh-colored or spotted skin about the nostrils, hair about the thighs or kemp on the body, reddish or sandy hair on head or legs, lack of wool on under part of body.

DISQUALIFICATIONS.—All male lambs shall be ineligible to registration if having scurs or horns exceeding one inch in length.

Dorset Horn.—The Dorset Horn breed, as the name implies, is one of the few domesticated breeds of sheep which possesses horns. In the rams the horns have a very



FIG. 177.—Dorset horn ram.

characteristic spiral form. They are large at the base, extend slightly outward from the head, then backward and curve forward. The face and legs of the breed are white. The fleece extends to the base of the lower jaw and the under side of it, extending in a circle around the eyes and over the poll and forehead. The fleece is medium in length and fineness. It extends to the knees and hocks, the remaining portion of the legs being white. The fleece is usually too short,

and not well distributed. The underside of the body and legs is often scantily covered with wool.

The size of the breed ranges from 200 to 225 pounds in the rams and from 150 to 175 in the ewes. The form of the Dorset Horn is somewhat inclined to be rangy, the ribs flat and the back low. The body has not as much scale and compactness as desirable for a typical mutton sheep. The Dorset Horn is an exceptionally good breeder, the ewes making excellent mothers, often breeding twice yearly. The quality of the lamb and mutton is above the average. The constitution is very well developed, although there is some tendency to shallowness of chest. Lack of mutton form and even distribution of fleece are criticisms of the breed.

STANDARD OF EXCELLENCE AND SCALE OF POINTS FOR DORSET SHEEP.

	Points.
HEAD.—Neat, face white, nostrils large, well covered on crown and under jaw with wool	5
HORNS.—Small and gracefully curving forward, rather close to jaw	5
EYES.—Prominent and bright	2
EARS.—Medium size, covered with short white hair	2
NECK.—Short, symmetrical, strongly set on shoulders, gradually tapering to junction of head	5
SHOULDERS.—Broad and full, joining neck forward and chine backward with no depression at either point (important)	15
BRISKET.—Wide and full, forward, chest full and deep	8
FOREFLANK.—Quite full, showing little depression behind shoulder	8
BACK AND LOIN.—Wide and straight, from which ribs should spring with a fine, circular arch	10
QUARTERS.—Wide and full, with mutton extending down to hocks	10
BELLY.—Straight on under line	3
FLEECE.—Medium grade, of even quality presenting a smooth surface and extending over belly and well down on legs	12
GENERAL CONFORMATION.—Of the mutton type, body moderately long; short, stout legs, placed squarely under body, skin pink, appearance attractive	15
Total	100

Suffolk.—The Suffolk breed is not widely distributed in this country. It resembles the Hampshire Down in many respects, the face and legs being either black or a very dark

brown. The breed is polled, the wool extending from the back of the ears and the lower extremity of the jaws down to the knees and hocks. Specimens of the breed are about equal to the Hampshire in size, rams weighing from 200 to 250 pounds, the ewes ranging about 50 pounds lighter. The Suffolk is a strongly constituted breed and it is said that they are immune from foot-rot. The ears are medium to large in size and are covered with a fine coat of soft



FIG. 178.—Suffolk ram.

hair. The head is rather broad, the neck moderately long, and the chest broad and full. On the whole, specimens of the breed are inclined to be rangy. However, it has a well-sprung rib. The fleece is moderate in length, and reasonably dense and fine in quality. The rather distinct black covering of the head and legs is a peculiarity of the breed. As a mutton breed it ranks well, possessing fat and lean-producing attributes which are especially favorable to lamb and

mutton production. The constitution is well developed, as indicated by the strong chest development. The breed is especially suited to low or rolling lands.



FIG. 179.—Suffolk ewe.

Tunis.—The Tunis breed is not widely distributed in America. The origin is unknown; however, it has existed in Tunis for several centuries. The breed is polled generally and characterized by a brownish color about the face and legs, the head being bare of wool from the forehead down and likewise the legs below the knees and hocks. The fleece is quite fine in quality, fairly compact, and averages about three to four inches in length. The color varies considerably. In some specimens the color of the fleece is white, while in others there is a reddish cast, and in still others, reddish fibers intermixed with the white.

The breed is rather small in size, the weight ranging from 140 to 160 pounds in rams and from 125 to 130 pounds in the ewes. The form is inclined to be rangy, the type not being especially well fixed in the breed. The head is rather long and inclined to be narrow, the ears large and the neck long and not compactly developed. The breed is fairly low set, although there is some tendency to extreme length of leg. The body possesses very good depth, however;



FIG. 180.—Tunis ram.

it is inclined to be narrow and lacking in the spring of rib. One of the characteristic features of this breed is the broad tail, which often measures four to five inches in width. It is thick and moderately long, the fleshy part extending down six to eight inches at maturity. The principal objections to the breed are its lack of size and uniformity in type. There is considerable opportunity for improvement in the breed, especially in these two respects.

WOOL TYPE.

Wool sheep are produced primarily for the fleece. In former years the variation in the mutton and wool type was greater than it is at present. Economic conditions have so changed that the breeders of strictly wool sheep are now giving more attention to the form or mutton-producing qualities. The fine-wool breeds were bred so carefully in wool-producing qualities that the weight of the fleece not



FIG. 181.—Wool type of sheep.

only formed an unusually large proportion of the total weight, but the constitutional development was thereby injured. The increase in the price of beef and other meat-producing animals has had a beneficial effect on the production of more and better sheep. It is also significant that the fluctuation in the price of fine wool, due to several conditions, has caused the fine-wool breeders to place more stress on mutton-producing qualities.

Conformation.—Compared with the mutton sheep, the wool type is smaller, longer in the leg, less symmetrical,

flatter in the ribs and not as heavily or uniformly covered with natural flesh. The type is wooled, however, practically from head to foot. The head is usually so densely covered with wool that the animal sees with difficulty. It is wooled to the extremity of the muzzle, over the belly, in the arm pits and down to the pasterns. Some of the breeds of this type are excessively wrinkled, thus giving a maximum area on which wool may be grown.

The modern type of fine-wool sheep is more symmetrical, less angular and smoother in form than formerly. This has been brought about largely by the desire to obtain better mutton-producing qualities. Attention has been given to breeding out the folds and wrinkles, thus materially improving the mutton form. Even with these improvements the wool sheep does not possess the thickness, smoothness and uniformity of natural flesh of the mutton type. In judging this type of sheep mutton-producing qualities should be emphasized consistently with the wool-producing attributes, which are of primary consideration.

Quality.—The wool type of sheep possesses an unusual degree of refinement. This is natural, however, considering the purpose of the animal. Naturally an animal producing a fine quality of wool would show correlated characteristics in other respects. While smaller, more angular, and less symmetrical than the mutton type, these animals possess unusual quality. The head is clear cut, the bone fine, the skin soft and pink, and the hair of fine quality where it appears on the animal.

A close examination of the fleece on a fine-wool sheep will indicate the possession of these attributes. The close-crimp, soft, compact nature of the fleece is indicative of correlated qualities otherwise. Other than the points mentioned the wool sheep is judged largely the same as the mutton animal. The fleece should be given first consideration, mutton-producing qualities being secondary.

Fleece Characteristics.—The fleece of the fine-wool breeds is shorter, finer and denser than the wool grown on any other breed. The term fine wool is significant of quality as related to fineness. As extreme length and fineness are antagonistic,

the fleece on the fine-wool breeds is comparatively short. The staple usually ranges from two to three inches in length having a close crimp and being very dense, meaning technically a large number of fibers per square inch. It contains an excessive amount of yolk, scoured wool often shrinking as much as 60 per cent. or more of its original weight.

The fleece of the fine-wool breeds completely covers the body from the muzzle extremity to the pasterns. Absence of wool over any part is seriously objectionable. The area or surface for producing wool has been materially increased by the development of the folds or wrinkles over the body. These folds are excessively developed in the American Merino, less so in the Delaine, with the fewest number appearing in the Rambouillet. The fineness and density of the fleece ranks in the same order, the American Merino producing the finest and the Rambouillet the coarsest wool of the three breeds.

In judging fine wools, the length, crimp, density, distribution, lustre, soundness and condition should all be carefully considered. The amount of yolk is also important, as an even distribution through the fleece indicates that the animal is in a healthy condition and therefore the wool is likely sound. The fleece should be thoroughly examined over all parts including the head, shoulders, back, sides, thighs, belly, and armpits. An evenly distributed, dense fleece with a close crimp and in a bright, lustrous, healthy condition is indicative of value, as measured by the demands of the manufacturer. This should be the guide in judging a fine-wool sheep the same as mutton form is judged according to the demands of the butcher and mutton consumer.

SCORE CARD FOR FINE-WOOL SHEEP.

GENERAL APPEARANCE—26 Points.

Perfect score.

<i>Weight</i>	4
<i>Form</i> : level, deep, stylish, round rather than square	6
<i>Quality</i> : clean, fine bone; silky hair; fine skin	6
<i>Temperament</i> : active	4
<i>Condition</i> : thick, even covering of firm flesh; full purse and flank, showing ripeness	6
Carried forward	26

	Perfect score.
Brought forward	26
HEAD AND NECK—6 Points.	
<i>Muzzle:</i> fine, broad, wrinkled nose; pure white	1
<i>Eyes:</i> large, clear, placid	1
<i>Face:</i> wrinkled, covered with soft, velvety coat	1
<i>Forehead:</i> broad, full	1
<i>Ears:</i> soft, thick and velvety	1
<i>Neck:</i> short, muscular, well set on shoulders	1
FOREQUARTERS—8 Points.	
<i>Shoulder:</i> strong, being deep and broad	4
<i>Brisket:</i> projecting forward, breast wide	2
<i>Legs:</i> straight, short, wide apart; shank smooth and fine	2
BODY—16 Points.	
<i>Chest:</i> deep, full, indicating constitution	6
<i>Back:</i> level, long; round-ribbed	4
<i>Loin:</i> wide, level	4
<i>Flank:</i> low, making underline straight	2
HINDQUARTERS—8 Points.	
<i>Hips:</i> far apart, level, smooth	2
<i>Rump:</i> long, level, wide	4
<i>Legs:</i> straight, short, strong; shank smooth, fine	2
FLEECE—36 Points.	
<i>Kind:</i> Domestic, clean and bright.	
Territory, dirty or discolored.	
Carpet } hairy or having dead fibers.	
Blanket }	
<i>Class:</i> Clothing, fiber under two inches in length or unsound.	
Delaine, fiber two to three inches in length.	
Combing, fiber over three inches in length and sound.	
<i>Grade:</i> fine, medium or coarse.	
<i>Quantity:</i> long, dense, even covering, especially over crown, cheek, armpit, hindlegs and belly	12
<i>Quality:</i> fine fiber, crimp close, regular; even quality including tops of folds	12
<i>Condition:</i> bright, lustrous, sound, pure, soft, even distribution of yolk, with even surface to fleece	12
Total	100

Fine-wool Breeds.—The fine-wool breeds of sheep as described below are derivatives of the Spanish Merino. These breeds exhibit marked peculiarities in the skin folds and the unusually fine quality and large quantity of the wool produced.

Merinos are sometimes classed into A, B, and C types on the basis of the presence or absence of the skin folds.

Class A has heavy folds at the neck, over the body and hind-quarters. They are characterized by high percentage of wool and yolk to carcass weight. This class is represented by the Spanish or American Merino.

Class B, has a smoother body than Class A and there are fewer folds in the skin and less yolk in the staple. This class is represented also by Spanish or American blood.

Class C has a comparatively smooth body with very few folds except possibly around the neck and shoulders. This class is represented by the Delaine Merino and Rambouillet.



FIG. 182.—American Merino ewe.

American Merino.—The American Merino is the smallest of the Merino breeds, rams ranging in weight from 125 to 135 pounds and ewes from 90 to 100. The form is angular,

lacking in symmetry, and therefore desirable mutton-producing qualities. The body is wooled from the upper part of the muzzle to the top of the hoofs with the exception of the ears and nose. The peculiar development for wool production gives the breed unusually dense fleece characteristics. The skin is excessively wrinkled over the neck and body. The head is small and has large, spirally twisted horns in the rams. The ewes are polled. From the standpoint of mutton production the breed is unusually defective, the heavy wool-producing qualities being antagonistic to the development of this quality. The fleece is short and very fine, and at times contains as much as 50 to 70 per cent. of yolk. The fleece is not excelled by any other breed in quantity or quality. Shearings of forty pounds or over are on record. The accumulation of foreign matter in the wool, caused by the excessive amount of yolk, gives the fleece an unusually dark appearance. Scouring removes this entirely. The color of the muzzle is white like the other parts, which are very infrequently exposed, owing to the uniform and dense wool covering. The head is rather broad, the neck thin and the shoulders light. The body has fair depth, although it is somewhat short and narrow. The breed is famous only for wool production.

Delaine Merino. — The Delaine Merino is larger in size and smoother in form than the American type. Rams range in weight from 125 to 175 pounds and the ewes from 100 to 140 pounds. The breeding out of the folds of the skin has been instrumental in the improvement of the mutton characteristics. The quality of the Delaine is good, both in wool and mutton production. The lower part of the face, muzzle, and lips are white and also that portion of the legs not covered by the fleece. The ears are rather small and covered with a fine quality of soft hair. The quality of the fleece in the Delaine is inferior to that of the American Merino, in not having the same degree of crimp or density. The fleece is also more open than in the American type. The breed is either horned or polled, depending on the line of breeding which has been followed. The introduction of crosses has caused considerable variation,

not only in the development of horns, but also in the size, smoothness, and compactness. The fleece characteristics have likewise varied with the breeding. The Delaine Merino does not have as much yolk in the wool as the American, however, the fleece is somewhat stronger and longer. Shearings of 15 to 20 pounds are not uncommon.



FIG. 183.—Delaine Merino ram.

STANDARD OF EXCELLENCE AND SCALE OF POINTS FOR DELAINE
OR CLASS C MERINO SHEEP.

	Points.
GENERAL APPEARANCE—23 Points.	
Weight: according to age: 30 pounds, six months; 60 pounds, twelve months	4
Form: low, compact, symmetrical	9
Quality: bone and wool fine, hair silky	10
HEAD AND NECK—9 Points.	
Muzzle: fine of good size, face medium length	2
Eyes: bright, easily seen; forehead broad	2
Ears: medium size, set well apart, coated with fine hair	2
Neck: short on top, deep, neatly blending head and shoulders	3
Carried forward	32

	Points.
Brought forward	32
FOREQUARTERS—14 Points.	
<i>Shoulders</i> : well placed; chest deep, medium thick	8
<i>Brisket</i> : carried well forward, with some breadth and fold or apron	2
<i>Legs</i> : straight, short, strong; feet good	4
BODY—10 Points.	
<i>Back</i> : straight, medium wide; loin wide	6
<i>Ribs</i> : well sprung, long; flanks low	4
HINDQUARTERS—12 Points.	
<i>Hips</i> : smooth; rump, long, level, wide	5
<i>Thighs</i> : ranging from muscular to plump	3
<i>Legs</i> : straight, short; stifle full; feet good	4
WOOL—32 Points.	
<i>Quality</i> : fine, soft, clean, even	10
<i>Density</i> : compact all over body	9
<i>Length</i> : uniform, at least 2½ inches for twelve months	9
<i>Oil</i> : light colored, evenly distributed	4
Total	100



FIG. 184.—Rambouillet ram.

Rambouillet.—The Rambouillet is the largest of the Merino breeds. More attention has been given to the

mutton-producing qualities than in the other two breeds of the fine-wool type. The breed may be considered dual purpose in its characteristics. The fleece is coarser and more open than in the other breeds. It covers the entire body, however, with the exception of the muzzle extremity and the ears. Rams of this breed range in weight from 175 to 200 pounds and ewes from 125 to 150. The constitution of the Rambouillet is exceptionally good. Specimens of the breed are large and vigorous in appearance. The body has good length and fair



FIG. 185.—Lincoln ewe, illustrating femininity and breeding qualities.

depth, although there is some inclination to stand high on the legs. The head is large, the nose strongly developed, and horns usually characterize males of the breed. From the mutton-producing standpoint the Rambouillet is very desirable, although compared with the best Down breeds they are somewhat inferior. One of the principal objections to the breed is the inclination to coarseness of bone. The fleece averages about three inches in length and does not possess an excess of yolk like the other fine-wool breeds. As a

combined wool and mutton producer the breed ranks well, having an acceptable mutton form and reasonably early maturing qualities. The breed is widely distributed.

Corriedale.—The native home of the Corriedale sheep is in the province of Canterbury, South Island, New Zealand. It is the result of crossing Merino ewes with Lincoln Colswold and Leicester rams after which a recrossing of their progeny was practised until the characteristics desired were obtained. The Corriedale possesses a good mutton form and in addition grows a reasonably fine wool with unusual length and uniform crimp.



Fig. 186.—Corriedale.

The breed has the same herding and grazing quality as the Merino with a very vigorous constitution. It is especially adapted to hilly countries or on the western ranges.

The Corriedale breeders of Australia require that animals must be inbred half breds for nine generations after the original foundation cross breds before they can be admitted to the flock book. The Corriedale is considered a good

dual purpose sheep, both its wool and mutton commanding good prices. The average weight of the fleece is from ten to twelve pounds. The wool is medium in quality, strong but rather light in yolk. The average length is something over three inches. The breed is hornless and the face, ears and legs are white as in the foundation stock from which the breed developed.

Rare Breeds in the United States.—As has been the rule in England and Scotland especially, numerous breeds or types of live stock have been developed with special reference to their adaptation to sections or local conditions. This local development has been especially emphasized in sheep. Among some of these breeds are the Ryeland, Exmoor, Wensleydale, Devon Long Wool, Herdwick, Lonk, Black Faced Highland and several others.

While some of these breeds are quite widely distributed and popular in their native homes, they have not been imported or distributed to any appreciable extent.

In addition to these breeds, there may be mentioned the Karakul which is a fur producing breed. The value of the breed lies principally in the skins which are taken from the young lambs which is known as Persian or Astrakhan fur. Rams of this breed are crossed with the Merino, Lincoln, Leicester, Cotswold and Cheviot, the best results having been obtained by crossing on the long wools. The breed is very rare and because of difficulty in breeding high class fur in the lambs it has not become widely disseminated.

Breeding and Class Characteristics.—From the standpoint of the stockman sheep may be divided into breeding, fat, and feeder classes. The first includes pure breeds of the various breeds, their grades and crosses. The second class includes fat sheep and lambs, and the third feeder sheep.

Breeding Classes.—In selecting sheep for breeding purposes whether pure bred or grade, special attention should be given to age, weight, health, quality, constitution, and condition. These subjects have been fully treated only from the standpoint of the pure-bred and fat sheep, and the application of the points mentioned here is therefore neces-

sarily important. In selecting sheep for breeding purposes the age is important. Broken-mouthed ewes will neither thrive themselves nor produce strong, vigorous lambs. Ewes selected for this purpose should show indication of health, proper weight for age, good constitution, and quality of both wool and mutton attributes. Such ewes should be large and roomy and uniformly covered with a fine, dense fleece. In pure-bred classes breed type and sex characteristics are



FIG. 187.—Grade-breeding ewe. (Photograph by author.)

important. Rams and ewes should show masculinity and femininity respectively.

Fat Sheep and Lambs.—Fat sheep and lambs should be judged according to the standard given formerly. Weight, quality, and condition are important. The fat sheep or lamb should be square, low set, compact, and fine in flesh texture. The back should be level, the loin wide, firm, and the quarters well developed. Fleece characteristics are not of special importance except that a reasonably dense fleece is usually associated with good mutton-producing qualities.

Open fleeces are objectionable on fat sheep as they are antagonistic to good mutton-producing form and quality.

Feeder Sheep.—Sheep selected for feeding purposes should, like breeding ewes, show unbroken mouths, good health, form, constitution, quality, and capacity. Large-framed sheep with angular bodies and long, open fleeces do not make good feeders. The age may vary, depending on the object in view. Early lambs are usually sold and consumed immediately, and therefore do not constitute a large proportion of sheep used for feeding purposes. Late lambs, wethers, and sheep which have attained the age of one year or more or ewes of proper qualification are frequently purchased for this purpose. A square, low-set body, thrift, capacity and a close, compact fleece are important.

ANGORA GOATS.

Importance.—The production of Angora goats is of considerable importance, especially in certain sections and under specialized conditions. The breed is a native of Angora, in Asia Minor, having been imported into this country in 1849. As a general thing, the Angora is not an important factor on the average farm. However, it is deserving of consideration in its special fields of production.

Purpose.—The introduction of the Angora goat into the field of live stock husbandry is comparatively recent, although the popularity which the breed has attained in some sections gives it a conspicuous place in the field of live stock production. The primary object for breeding the Angora is to obtain the fleece which usually sells for high prices, this depending, as in wool, on the length, quality and condition. The Angora is bred secondarily for mutton production. In judging stress should be placed, first, on the length, density, fineness and uniformity of fleece covering. Mutton-producing attributes should be given a secondary consideration. Angoras are judged in this respect very much like the fine-wool breeds of sheep.

General Appearance.—In general appearance the Angora of approved breeding shows neatness and tidiness of form

and features. It is usually pure white in fleece markings. It is alert, having a keen expression, long, pendant ears, a body of medium length and depth but inclined to be narrow. The fleece parts along the back and hangs in wringlets almost to the ground in well-bred animals.

Conformation.—The Angora is on the average smaller than the common goat. The weight ranges from 50 to 100 pounds, depending on the age, breeding and condition. The body should be reasonably broad, long, deep and low set. The back should be straight and level. The body is inclined to be somewhat narrow and the legs short and strong. The head should show strong, clear-cut features. The ears usually droop and attain a length of six to eight inches. The eyes should be large and bright. The horns are grayish in color, inclining inward, backward, and then upward and outward, with a reasonable spread at the tips. In the females the horns are smaller, straighter and shorter and are inclined to grow more in an upward direction.

The head should be broad and strong at the poll and taper gradually to the muzzle. In females, there is an incurving facial outline which is very characteristic. Taken as a whole, the animal should present a reasonably square, strong-lined contour. In many cases, however, this condition is emphasized by the peculiar growth of the fleece.

Constitution.—Evidences of constitution are exhibited in a large, bright, prominent eye, a strong muzzle, and large, open nostrils. The chest should be broad, deep, and the heart girth full and the brisket rather prominent. There should be no indication of delicacy about the head and neck, although feminine characteristics may apparently portray this condition. Low, narrow shoulders and long, slender bone indicates a lack of vigor and constitutional development. Other than these points constitution is evidenced by the same characteristics as in other animals.

Quality.—The horns should not be excessively large or coarse in texture. A coarse horn indicates coarse quality and otherwise undesirable characteristics. The bone should be clean, dense, and of ample size to insure a vigorous, continuous period of usefulness. The head is indicative of



FIG. 188.—A group of Angora goats, showing the characteristic type and fleece desired. (Courtesy of William Riddell & Sons, Monmouth, Oregon.)

quality by the clean-cut features possessed. There should be no indication of coarseness about the muzzle or shoulders. The fleece is a reliable guide to general quality. A close, compact fleece, soft to the touch and with tightly twisted spirals indicates quality development. A bright, lustrous fleece, free from kemp and a pink, healthy skin, characterize these animals as having desirable breeding qualities.

Fleece.—The fleece should be dense and cover the entire body uniformly. Special emphasis should be placed on the belly covering. The annual growth should not be less than ten inches. The density should be such that an average-sized Angora will shear from three to five pounds. The fleece should hang in wringlets or spirals tightly twisted up to the skin. Loose, wavy hair is objectionable as it indicates coarseness throughout. The fleece should be bright and lustrous, having great tensile strength and freedom from kemp or lead-colored hair. This depreciates the value of the fleece regardless of its quality otherwise. Formerly it was thought impossible to breed out these undesirable qualities but recent improvements disprove the idea.

The fleece of the Angora, known as mohair from a commercial point of view, differs from the wool in sheep in not having exterior scales and felting characteristics. The mohair covers an undergrowth of hair which is technically known as kemp. Mohair is lustrous and white, at times attaining a length of sixteen to eighteen inches. Its value is determined by the length, density, fineness and condition. Emphasis should be placed on these characteristics as well as on uniformity of covering and freedom from kemp or other foreign matter. The fleece should extend from the base of the horns, completely encircling the neck, and thence back over the body, covering the body proper, arm pits, belly and legs. Angoras which have been graded up by using a pure-bred sire on common goats are frequently bare over the belly, in the arm pits, on the legs, and have an inferior quality of mohair.

Breed and Sex Characteristics.—The breed is characterized by the possession of horns, both in males and females, the characteristic fleece known as mohair, and the absence of

the strong musky odor of the common goat. Specimens of the breed are comparatively small in size, although reasonably strong in constitution, especially after attaining the age of two months. The fleece is exceptionally long in well-bred individuals and does not possess felting qualities like wool. The fleece is shed each spring if not shorn. This should be considered in judging when in this shedding condition. While some Angoras are colored it is rather a rare characteristic in well-bred specimens. Colored spots on the skin are very objectionable.

The sex characteristics should be portrayed the same as in other animals. The males should possess a broad, strong head, rather large horns, a full neck, and a broad, deep body. Femininity is indicated by bright expressive eyes, incurving facial outlines, and a general appearance of refinement.

Adaptation.—Angoras seem especially adapted to a dry climate, although they are found in nearly every State in the Union. Large flocks are maintained through the west and southwest, principally in New Mexico and Texas. With good care they will adapt themselves to a wide range of conditions.

STANDARD OF EXCELLENCE FOR ANGORA GOATS		Points.
FINENESS AND LUSTRE OF FLEECE:		
Extra Good		20
Good		14
Medium		8
QUANTITY OF FLEECE:		
Extra Good		20
Good		14
Medium		8
FREEDOM FROM KEMP:		
Extra Good		20
Good		14
Medium		8
SIZE OF BONE, BREADTH AND DEPTH OF CARCASS:		
Extra Good		20
Good		14
Medium		8
CONSTITUTION AND FORM:		
Extra Good		20
Good		14
Medium		8
Total points for perfect animal		100
Total points for good animal		70
Total points for medium animal		40

CHAPTER XIV.

APPLICATION OF JUDGING AND SELECTION TO BREEDING AND FINISHING FARM ANIMALS.

Individual.—The individual animal is the nucleus for live stock improvement. This fact is evidenced by the immense practical use which is being made of the pure-bred sire in the improvement of herds and flocks of horses, cattle, sheep and swine. Davenport quotes that the sire is half the herd or even more. He is half of the first generation, three-quarters of the next, seven-eighths of the third and so on until, if judicious selection be maintained for a few generations, the character of the herd will be fixed by the sire alone. This emphasizes the fact that if the breeder must choose between the selection of a pure-bred sire and a number of varying females, in all cases the pure-bred sire should be selected in preference to following the latter course. This plan of breeding has direct application from the standpoint of live stock judging and selection. Granting this statement, the sire can be made of much greater importance by keener judging, closer selection and wider usage on farm herds and flocks.

Herd Improvement.—Herd improvement is divided into two fundamental divisions, namely, the breeding of pure-bred and grade animals. In either case, the most careful judging and selection will accomplish the most noticeable results in a given time. The breeder who eliminates the inferior individuals from the standpoint of individuality as well as those which fail to respond satisfactorily to the breeding test, must not only be a breeder in the general sense of the term, but a judge of the highest order. If otherwise, the maximum results obtainable from careful judging and close selection will not materialize in the herd. The breeder,



FIG. 189.—The show ring has been an important factor in breeding herds to a uniform standard.

in other words, must be a keen student of animal form and attainments. He must be able to detect to a reasonable degree of accuracy the probable outcome of the individuals which he chooses to raise the standard of his herd. It is only by continuous elimination, generation after generation, that the maximum results of selection are obtained. There must be a standard or an ideal toward which breeding operations may be directed. This involves an unusual amount of animal knowledge, both as applied to the individual, the herd and the breed which is being perfected or improved.



FIG. 190.—Uniform type, illustrating careful judging and selection for the show ring.

Attributes of the Breeder Responsible for Degree of Improvement.—A proper knowledge of the habits and treatment of animals is most important from the breeder's point of view. Those who have been intimately associated with animals during their entire lifetime almost without exception rank as the keenest judges and breeders of live stock. The best shepherds are those who have assisted and grown in the ranks from early life to finally attain the management of a flock. It is not only a knowledge of animals which may have been obtained early or late in life but the direct association in feeding and management which makes the best judge, and therefore the best breeder. A first-class judge who produces prize-winning animals is almost invariably

one who spends much time in studying the peculiar traits, form and quality of his animals. It is in this way usually that the master breeders have learned the details of structure, the peculiarities of individuals, herds and breeds and thereby attained the greatest success as breeders on the farm and in the show ring.

Live Stock Shows.¹—The importance of live stock shows in establishing standards for herd and breed improvement can scarcely be overestimated. While much mediocre stock has been shown and irrational practices followed in preparing specimens for exhibition much valuable knowledge has been so gained. The fact that the good and bad conditions have both existed has given the student of judging and selection an opportunity to consider and decide logically on the value of such practices in perfecting animal form and studying its related problems. Wherever sound practices have been followed they have usually continued with the result that future generations have been improved thereby. A better opportunity of carefully studying these conditions has never been afforded the student or breeder. Live stock shows have formed a most important nucleus by which the best practices of breeding, feeding and fitting have been sifted from the various methods and practices followed in the preparation of breeding and fat animals for the show ring.

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APPENDIX.

PURE-BRED LIVE STOCK REGISTRY ASSOCIATIONS.

HORSES.

Percheron Society of America, Wayne Dinsmore, Secretary, Union Stock Yards, Chicago, Ill.

National French Draft Horse Association, C. E. Stubbs, Secretary, Fairfield, Iowa.

American Clydesdale Association, R. B. Ogilvie, Secretary, Union Stock Yards, Chicago, Ill.

American Shire Horse Association, Chas. Burgess, Secretary, Wenona, Illinois.

American Association of Importers and Breeders of Belgian Draft Horses, J. D. Connor, Jr., Secretary, Wabash, Ind.

American Suffolk Horse Association, A. Graham Galbraith, Secretary, DeKalb, Ill.

American Hackney Horse Society, Gurney C. Gue, Secretary, 308 W. 97th St., New York, N. Y.

French Coach Horse Society of America, Duncan E. Willett, Secretary, Oak Park, Ill.

German Hanoverian and Oldenburg Coach Horse Association of America, J. Crouch, Secretary, Lafayette, Ind.

Cleveland Bay Society of America, R. P. Stericker, Secretary, Oconomowoc, Wis.

American Morgan Register Association, T. E. Boyce, Secretary, Middlebury, Vt.

American Saddle Horse Breeders' Association, R. H. Lillard, Secretary, Louisville, Ky.

American Trotting Register Association, W. H. Knight, Secretary, 355 Dearborn St., Chicago, Ill.

The Arabian Horse Club of America, Henry K. Bush Brown, Secretary, Newburg, N. Y.

The Jockey Club, W. H. Rowe, Secretary, 5th Ave. and 46th St., New York, N. Y.

Welsh Pony and Cob Society of America, Geo. E. Brown, Secretary, Aurora, Ill.

American Shetland Pony Club, Miss Julia M. Wade, Secretary, Lafayette, Ind.

American Jack Stock Stud Book, J. W. Jones, Secretary, Columbia, Tenn.

CATTLE.

American Shorthorn Breeders' Association, F. W. Harding, Secretary, Chicago, Ill.

The Polled Durham Breeders' Association, J. M. Martz, Secretary, Greenville, Ohio.

American Hereford Cattle Breeders' Association, R. J. Kinzer, Secretary, Kansas City, Mo.

American Aberdeen-Angus Breeders' Association, Chas. Gray, Secretary, 17 Exchange Ave., Chicago, Ill.

American Galloway Breeders' Association, Robt. W. Brown, Secretary, 817 Exchange Ave., Chicago, Ill.

The Red Polled Cattle Club of America, H. A. Martin, Secretary, Gotham, Wis.

American Devon Cattle Club, L. P. Sisson, Secretary, Charlottesville, Va.

American Jersey Cattle Club, R. M. Gow, Secretary, 8 W. 17th St., New York, N. Y.

American Guernsey Cattle Club, William H. Caldwell, Secretary, Peterboro, N. H.

Holstein-Friesian Association of America, F. L. Houghton, Secretary, Brattleboro, Vt.

Ayrshire Breeders' Association, C. M. Winslow, Secretary, Brandon, Vermont.

Brown Swiss Cattle Breeders' Association, Ira Inman, Secretary, Beloit, Wis.

Dutch Belted Cattle Association of America, G. G. Gibbs, Secretary, Marksboro, N. J.

SWINE.

American Berkshire Association, Frank S. Springer, Secretary, 510 E. Monroe St., Springfield, Ill.

National Poland-China Record Association, A. M. Brown, Secretary, Winchester, Ind.

Standard Poland-China Record Association, Geo. F. Woodworth, Secretary, Maryville, Mo.

American Poland-China Record Association, W. M. McFadden, Secretary, Union Stock Yards, Chicago, Ill.

National Duroc-Jersey Record Association, J. R. Pfander, Secretary, Peoria, Ill.

American Duroc-Jersey Record Association, T. P. Pearson, Secretary, Thornton, Ind.

Ohio Improved Chester White Swine Breeders' Association, J. C. Hiles, Secretary, Cleveland, Ohio.

Cheshire Swine Breeders' Association, Ed. S. Hill, Secretary, Freeville, N. Y.

American Essex Association, F. M. Strout, Secretary, McLean, Ill.

American Yorkshire Club, Harry G. Krum, Secretary, White Bear Lake, Minn.

American Tamworth Swine Record Association, E. N. Ball, Secretary, Hamburg, Mich.

American Hampshire Swine Record Association, E. C. Stone, Secretary, Peoria, Ill.

National Mule-foot Swine Record Association, W. H. Morris, Secretary, Indianapolis, Ind.

SHEEP.

American Leicester Breeders' Association, A. J. Temple, Secretary, Cameron, Ill.

American Cotswold Registry Association, F. W. Harding, Secretary, Waukesha, Wis.

The National Lincoln Sheep Breeders' Association, Bert Smith, Secretary, Charlotte, Mich.

American Southdown Breeders' Association, Frank S. Springer, Secretary, Springfield, Ill.

American Shropshire Registry Association, Miss Julia M. Wade, Secretary, Lafayette, Ind.

American Oxford Down Record Association, W. A. Shafor, Secretary, Hamilton, Ohio.

American Hampshire Sheep Association, Comfort A. Taylor, Secretary, 310 East Chicago St., Coldwater, Mich.

Continental Dorset Club, Joseph E. Wing, Secretary, Mechanicsburg, Ohio.

American Cheviot Sheep Society, F. E. Dawley, Secretary, Fayetteville, N. Y.

American Tunis Sheep Breeders' Association, Chas. Roundtree, Secretary, Crawfordsville, Ind.

Romney Marsh Sheep Breeders' Association, J. E. Wing, Secretary, Mechanicsburg, Ohio.

Vermont, New York and Ohio Merino Sheep Breeders' Association, Wesley Bishop, Secretary, Delaware, Ohio.

National Delaine Merino Sheep Breeders' Association, J. B. Johnson, Secretary, 248 West Pike St., Canonsburg, Pa.

American Rambouillet Sheep Breeders' Association, Dwight Lincoln, Secretary, Milford Center, Ohio.

GLOSSARY OF HORSE AND MULE MARKET TERMS.¹

A Bull.—A horse so windy that he cannot stand much exertion without choking.

A Few Hairs Off.—A skin blemish not haired over; usually a wire mark which may be either large or small.

A Hole In.—Used in speaking of an animal that is believed to be defective in some manner but at present it is not apparent.

An Indian.—A wild or vicious horse difficult to handle in or out of the stall.

¹ From Bulletin No. 122, Courtesy Illinois Experiment Station, Urbana, Ill.

At the Halter.—See No. 6, Auction Rules.

Beefy Hocks.—Thick, meaty hocks, lacking in quality.

Bench-legged.—See knock-kneed.

Blue-eye.—An unsound eye with blue appearance. The sight may or may not be entirely gone.

Bobber or Jig Back.—A horse or mule that wobbles in hind-quarters when he moves, due to an unsound or weak back in the region of the loin.

Boggy in Hocks.—Bog spavins.

Bow-legged.—Too wide apart at the knees, the opposite of knock-kneed.

Bowed Tendon.—An enlarged tendon back of the canon, due to an injury.

Broken Knees.—Knees which have had the skin broken from a fall or a bruise and much enlarged.

Buck-kneed.—Knees bent forward when standing.

Bull Pen.—An auction ring at any market where horses are sold.

Bush.—To deduct a part of a stated sale price on account of a blemish, or unsoundness not mentioned or not apparent at time of sale, *or for other reasons*.

Calf-kneed.—Knees bent too far back—the opposite of buck-kneed.

Capped Hock.—The point of the hock back of the web enlarged. Caused by a bruise of the bursa.

Car Bruise.—Bruised in car in shipping. If freshly done swelling and inflammation will be present.

Cartilage.—Prominent lateral cartilage or incipient side bone.

Chancy.—Purchased at a moderate price because of an uncertainty, with prospects for developing into something good.

Cock Ankle.—Standing bent forward on the fetlocks—more often on the hind ones.

Coon-footed.—Long and very low pasterns.

Coupling.—The space or connection between the dorsal vertebræ and the pelvis on top of the back. An animal that has a long coupling is too long in the lumbar vertebræ. This is best measured by the distance of last rib from hip.

Cow-hocked.—Standing with hocks together and hind-toes out.

Crampy.—In hindlegs—raising either one or both legs up with a jerk. More apparent when the animal has been standing and is cool.

In the Back.—When the head is elevated and the animal is compelled to move backward he raises his tail and shows a quivering of the flanks, soreness of the loin and an inclination to drag his feet.

Cribber.—An animal having the vice of biting or setting the teeth against something and “sucking wind.”

Cross-firing.—Hitting one of the forefeet with the opposite hindfoot when traveling.

Curb.—An injury or sprain of the ligament at the back of the hock which usually causes an enlargement.

Curby Hock.—The back of the hock is rounding when viewed from the side.

Cushion.—An enlarged bursa occurring just below the hock near the forward edge on the outside of the canon. A Michigan pad.

Cutting.—Interfering.

Docked.—Having the end of the tail cut off.

Docked and Set.—By an operation the end of the tail is cut off and the stump is set up.

Dummy.—A horse whose brain is affected, the cause usually being overfeeding and lack of exercise. The symptoms are listlessness and hesitancy in moving; a vacant stare in the eyes and a proneness to cock the ears and look sideways and upward; also, the holding of hay and feed in the mouth without any attempt at mastication.

Ewe Neck.—A deficiency of muscling causing a depression at the top of the neck just in front of the withers.

Falls Out of Bed.—Pulls back on halter rope.

Feather in Eye.—A mark across the eyeball not touching the pupil, often caused by an injury. It may or may not impair the sight.

Filled-in Hocks.—May mean either bog spavins or thoroughpins, though most generally the former.

Fistula.—Fistulous withers. An abscess occurring in the region of the withers.

Forging.—Striking the front shoes with the toe of the hind ones.

Founder.—Inflammation of the feet causing lameness. Technically known as laminitis.

Glass-eye.—See wall-eye.

Goose Rump.—A short, steep croup and narrow at point of the buttock.

Gristle.—An incipient side bone.

Halter Puller.—Pulls back on halter rope.

Hand.—Four inches. Horses are measured at the highest point on the withers in terms of hands. 14-2 would mean 14 hands and 2 inches, or 58 inches.

Heavey.—Having the heaves.

Hipped.—Having the point of one hip broken over so that it appears lower than when normal. It does not materially impair usefulness.

Hitching.—Having a shorter stride in one hindleg than the other.

Hog Back.—A roached back, the opposite from sway back.

Hollow Back.—A sway back.

Interfering.—Striking the fetlock or canon with the opposite foot as it passes, either in front or behind.

Jack.—A bone spavin.

Jibber.—An unguidable horse, often "green."

Knee-banger.—One that interferes—hitting his knees.

Knee-sprung.—Over on the knees caused by relaxation of the extensor muscles—sometimes spoken of as buck-knees.

Knock-kneed.—The front legs bent in at the knees with feet wide apart. Sometimes called bench-legged.

Legs Go.—See No. 5, Auction Rules.

Light in the Timber.—Light bones, especially in the canons.

Little Green.—Not thoroughly broken. Often means an animal that will not pull.

Lugger.—One that pulls or lugs on the bit.

Lunker.—An exceptionally big, heavy-boned horse.

Makes a Little Noise.—A very little windy.

Michigan Pad.—A puff or cushion that occurs just below the hock on the outside of the hind canon near the forward edge. The same as outside cushion.

Moon Blindness.—Periodic ophthalmia.

Nicked.—An operation severing the cords on one side of the tail to straighten it.

Nigger-heeled.—Front toes turned out, heels in.

Old Skin or Skate.—A worn-out animal.

Outside Cushion.—The same as cushion or Michigan pad.

Over-reach.—Reaching farther forward with the hindfeet in traveling than where the front ones were picked up.

Paddle.—Winging out with the front feet.

Parrot Mouth.—The upper submaxillary longer than the lower jaw.

Periodic Ophthalmia.—Inflammatory affection of the interior of the eye. It usually disappears in a week or ten days and returns again in a few weeks. The cycles are often completed in about a month and because of this fact many people believe the trouble is in some way related to the moon changes, hence the name "moon blindness."

Pig-eye.—A small eye set too much in the head and with thick eyelids. It accompanies, in general, animals with a lymphatic temperament and with imperfect vision.

Pigeon-toed.—Front toes turned in—the opposite of nigger-heeled.

Pink-eye.—A disease causing a white skum to form over the eye often causing blindness.

Poll Evil.—A fistulous condition or abscess on or near the poll.

Pones.—Lumps of fat on a mule's body.

Posting.—Rising and falling in the saddles with each alternative step when the horse is trotting.

Puffs.—Wind galls, bog spavins, or thoroughpins.

Quarter Crack.—A vertical crack on the side of the hoof often running to coronet.

Quittor.—A fistulous opening upon the heel or coronary band of the foot.

Rat Tail.—A tail with but little hair.

Rejects.—Animals not filling the guarantee and consequently turned back on the hands of the seller.

Rickety.—The same as bobber or jig back.

Ring-bone.—A bony growth on the upper or lower pastern bones and most always causing lameness.

Ripper.—An exceptionally good big animal.

Roach Back.—See hog back.

Roarer.—Defective in wind. Very windy.

Rough Behind.—Having a bone spavin.

Rounding Hock.—Having a curb.

Sand Crack.—A vertical crack in the middle of the hoof often running to coronet.

Scalping.—When speeding, the horse strikes the front side of the hind coronet, pastern or canon against the front toe. Also, applied to a trader that buys and sells animals on the market.

Seam in Hoof.—A scar in hoof from an injury of some kind, such as cracks, wire marks, calks, etc.

Seedy Toe.—A separation of the walls of the toe from the sensitive laminae. Very often the end of the toes turns slightly up.

Serpentine.—An animal that extends and withdraws his tongue as a serpent.

Serviceably Sound.—See No. 2, Auction Rules.

Shoe Boil.—A bruise at elbow which results in an abscess, caused from the animal lying on his foot in such a way that the heel of the shoe strikes the elbow.

Sickle Hock.—Too much bend in the hock. A conformation predisposed to curbs.

Side-bone.—An ossified lateral cartilage occurring on either side at the top of the foot.

Slab-sided.—Flat-ribbed.

Smoke His Pipe.—An animal with lip torn where the bridle bit rests.

Smoky Eye.—A clouded eye with whitish appearance.

Smooth Mouth.—An aged horse.

Sound.—See No. 1, Auction Rules.

Speck in Eye.—A spot on the eye not covering the pupil. It may or may not impair the sight.

Speedy Cutting.—Striking the inside of the hind canon against the front foot as the hindfoot is brought forward and passes the front foot on the outside in over-reaching. This only happens in speedy horses.

Splay-footed.—Nigger-heeled.

Splint.—A bony growth on the canon-bone occurring most often on the front legs and either on the inside or out, but more often on the inside.

Stands a Little Careless in Front.—Knees sprung or buck-kneed.

Stringy.—String-halt. A convulsive action in the hind-legs flexing either one or both up with a jerk.

Stump-sucker.—A cribber.

Sucker.—An animal with some defect which is not always apparent.

Sweeney.—Atrophied shoulder muscles causing a depression.

Thick Neck.—A neck too thick at the shoulder for a collar to fit well.

Thoroughpins.—Puffiness occurring in the web of the hock.

Tongue Loller.—Permitting the tongue to hang out.

Trephined.—A hole in the jaw bored for removing a molar tooth.

Trot Out Short.—Sore in front, having a short stride.

Wall-eye.—The iris a pearly white color, due to a lack of pigment. Sometimes called glass-eye.

Weaver.—Continual swaying back and forth when standing in the stall.

Wind and Work.—See No. 3, Auction Rules.

Wind Galls.—Puffs occurring at the upper part of the fetlock joints.

Windy.—One that whistles or roars when exerted.

Whistler.—Defective in wind. See windy.

Winging.—Throwing the front feet out or in when traveling.

Worker.—See No. 4, Auction Rules.

AUCTION RULES.

NOTE.—In the auction ring sales are made under certain well-understood rules which are published and announced from the auction stand, recorded and stand as a guarantee. The following are the principal rules which govern sales in the auction ring. Exceptions to these rules may be announced from the auction stand pointing out the defects, in which case they are recorded and go with the horse.

1. *Sound*.—Perfectly sound in every way.

2. *Serviceably Sound*.—Virtually a sound animal, barring slight blemishes which do not interfere with his usefulness in any way. His wind and eyes must be good, but a spot or streak in the eye which does not affect the sight will be considered serviceably sound as long as the pupil of the eye is good. He must not be lame or sore in any way.

3. *Wind and Work*.—The only guarantee this carries with it is that the animal has good wind and is a good worker.

4. *Work Only*.—He must be a good worker and everything else goes with him. No other guarantee than to work.

5. *Legs Go*.—Everything that is on the animal's legs go with him; nothing is guaranteed except that he must not be lame or crampy. He must, however, be serviceably sound in every other respect.

6. *At the Halter*.—Sold just as he stands without any recommendations. He may be lame, vicious, balky, kicker or anything else. The purchaser takes all the risk.^m The title only is guaranteed.

BRIEF DESCRIPTIONS APPLICABLE TO MOST BREEDS OF CATTLE, SWINE, AND SHEEP.

BY ROBERT WALLACE,
UNIVERSITY OF EDINBURGH.

General Points of Beef-producing Cattle.—The masculine or the feminine characteristics naturally represented in individual specimens of each sex.

General appearance stylish, and showing quality; figure compact and well-proportioned, deep, broad, and low set as opposed to being leggy.

Head broad between the eyes, flat across the crown (with exceptions in polled breeds) and down the face, which should be neither "dished" nor Roman, but short, or of medium length, with a quiet expression; forehead broad and full; muzzle broad, full, distinct, and dewy; mouth large; jaw wide; nostrils large; eyes large, placid, and clear; horns none, or varying in length, color, and strength, according to breed, fine and symmetrical, set on the crest of the head; ears full and sensitive, of fine texture, well covered with hair, and varying slightly in position in the different breeds.

Neck medium length, full at the "neck-vein," or "shoulder-vein" where it joins the body, broad (muscular and crested in the male), but fine, and tapering toward the head—to which it should join without thickness or chokiness—and straight from the shoulder top to the roots of the horns, excepting when it rises into the crest of a bull.

Body long and deep, equally balanced before and behind; back broad throughout its length, smooth and even, and straight from the top of the shoulders to the tail-head; the frame well and equally covered with firm flesh, especially in the regions of the best cuts, not patchy on the hooks, tail-head, rump, shoulders, or other parts (when prime fat, a little pit may be felt on the point of each hook). The trunk.

looked at from any point, should resemble as nearly as possible a parallelogram; the under and upper lines straight and parallel; brisket projecting well forward and wide, making the forelegs stand well apart; loin thick and broad; flank full and deep, even with the underline; foreflank to correspond, well filled; tail thin, set on well back (but not too high), and falling perpendicularly.

Skin moderately thick (not papery), pliable, and mellow or mossy to touch; hair soft and abundant, covering all parts well.

Shoulders well covered with flesh and laid back over the ribs, so that the natural depression behind them in the region of the heart or girth line should not be too pronounced, broad and compact on top; the shoulder-blades adhering closely to the trunk; shoulder-points fine, "snug," and well covered.

Chest, viewed from before or from behind the shoulder, full, wide, deep, and massive; girth large; crops full.

The forearm and leg straight and short; muscle large and broad; leg-bones dense and strong, though smooth, fine, and flat (abnormally small bone shows tendency to diminished size); legs short and well under the body; hoofs clear and oily looking.

Hindquarters full and well packed, lengthy from the hook-bones to the pin-bones (which should be well apart); rump wide and even, and the tail-head smooth, not patchy, and no part rising above the back level; hips smoothly covered, distance from each other to harmonize with other parts; thighs broad, thick, and well down toward the hocks; twist or inner thigh full, deep, and plump.

Ribs thickly fleshed, well sprung (arched), and deep, filling up deficiency behind the shoulder and hollow in front of the hooks, *i. e.*, "well-ribbed home."

Legs straight and short, shanks fine and smooth.

The lines of the body flowing, not sharp or abrupt, with a general balance of parts to please the eye; carriage stylish.

Points Generally Applicable to all Breeds of Swine.—In judging, it is best to begin at the feet and legs, as these are most important, on account of their having to carry the

weight when the animal is fat and heavy, and to insure firm, free action. The feet should be proportionate and neat; the pasterns strong; the legs perfectly straight and well set, level with the outside of the body, with plenty of fine, flat bone, fleshed well down in both fore and hind-quarters; feet wide apart; loin strong, and as broad as the shoulder-head, which should be compact and free from any opening or looseness; the back broad all the way, straight and level, not drooping too much at the rump when the animal walks, and extending over the neck. Pigs are all liable to arch in the back and droop at the rump when standing. The underline should be parallel, and continued below the jaw; the chest wide and deep; the belly full, but not flabby; the quarters long and wide, and straight from hip to tail; hams broad, full and deep to hocks; the flank thick, full, and well let down; the ribs well sprung, and sides deep; the neck thick, especially toward the shoulders, and of proportionate length; the ears vary from a foot long to a few inches, each breed having its own special size, shape and position; the head broad between the eyes; the nose long or short, according to breed; the under jaw shorter than the upper; the cheeks full; the eye not too small, quick, but mild; the tail stout and long, and set high, but not coarse, and a tuft of long, fine hairs on its tip; the body well covered all over with flesh, and of a rectangular shape from all points of sight, deep and wide before and behind; the skin medium in thickness, and covered with a sufficient coat of characteristic hair.

Though the points enumerated are those looked for at shows, it has been most forcibly pointed out by Sanders Spencer, one of the most successful breeders and exporters of white pigs in England, and also by those interested in the bacon-curing trade, that the most economical pig to breed, and consequently the one which ought to be encouraged in the show yard, should be long in the body, a good medium depth in the ribs, light in the neck and forequarters, and heavy and deep behind in the hams or gammon; or, as A. W. Shaw, of Limerick, has tersely put it: "What is really wanted, is a pig that is neat in the head, light in the neck

and shoulders, deep in the heart, thick in the loin, stout in the thighs, and short in the legs"—the reason being that changes in the curing trade and pork market have resulted in certain parts of the animal being of greater value per pound than other parts. The shoulder and neck being of least value, it is shown that it is a waste of food substance to transform it into flesh of inferior quality, if by selecting animals with tendencies to greater development in the more valuable parts a greater amount of material on the higher division of the scale of market values can be produced.

Points Applicable to Most British Breeds of Sheep.—1. A graceful carriage and springy style of walking.

2. A characteristic head with good depth and strength of jaw, and breadth across the bridge of the nose, and full, bright eyes, indicating both docility and courage.

3. The neck thick toward the trunk, tapering to the head, arching slightly, and not too short.

4. The chest broad, deep, and projecting well over the forelegs, and descending from the neck in a perpendicular line.

5. The back level and broad behind and before (except in the Cheviots and Lonks, which have sharp shoulder-tops or withers), with a uniform covering of flesh, not boggy, but to the touch firm and muscular; under and upper lines straight.

6. The ribs well sprung, rounded and deep.

7. The shoulders well laid and covered with firm flesh. The regions immediately behind the shoulders filled up.

8. The thighs and gigots and also the arms and the fore-flanks fleshed well down.

9. The rump or part near the dock well developed, though not too large, as is sometimes the case in Cotswolds, Border Leicesters, and other heavy-fleshed breeds.

10. The quarters long and not drooping behind, and the spaces between them and the last ribs short.

11. The legs straight and set well apart, not too long; the bone clean and fine, and neither coarse nor deficient; the hocks are much better slightly out than at all in or "cow-hocked."

12. The characteristic wool of the special breed covering well the body, and particularly the belly; also the scrotum of the ram.

MARKET GRADES AND CLASSES.

The most intelligent producer of live stock should have a knowledge concerning the various grades and classes of live stock which fulfil market requirements. Very often a producer of stock, on account of his lack of knowledge concerning these problems, does not receive the maximum price for his product. In studying this problem a clear distinction should be made between classes and grades. A class represents some special type of animal designated for a specific purpose. The term grade should be construed as indicating the degree of perfection attained as compared with the standard for the class. For example, in cattle the market classes are beef cattle, butcher stock, canners and cutters, stockers and feeders, veal calves, Texas and Western range cattle, and distillers, the latter two constituting subclasses. The miscellaneous classes include baby beef, export cattle, shipping steers, dressed beef cattle and stags. Each of the above main classes is then subdivided into prime, choice, good, medium, common and inferior grades. These represent the principal market distinctions. In certain classes there are additional grades, such as fancy selected; this term being used in designating feeder cattle.

The division by classes is based on use and into grades on conformity to this use or purpose. The designation by grades is based on weight, quality, conformation, maturity and condition. Horses, cattle, sheep and swine are all so classed and graded, although there are certain specific market terms which are used in designating each of the classes and grades fixed by different market requirements.

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